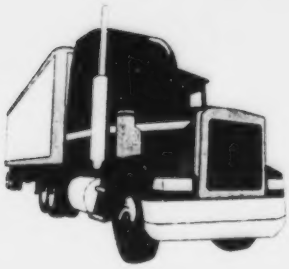
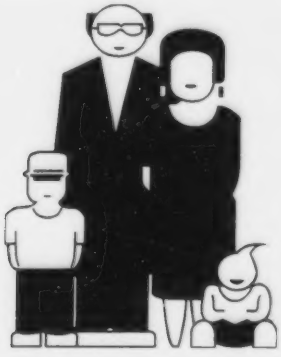


Traffic Collision Statistics Report



1998

Manitoba
Highways and
Government Services

Preface

The Department of Highways and Government Services, through the Division of Driver and Vehicle Licencing and the Traffic Engineering Branch, has the responsibility for the collection of all traffic collision data in Manitoba. The Traffic Accident Report is the means by which accident data is collected. Under *The Highway Traffic Act* and *The Off-Road Vehicles Act*, all traffic collisions involving a fatality or an injury must be reported to a law enforcement agency. A fatal traffic accident is defined as a collision where an injured victim dies within thirty (30) days from the date of the accident. Property damage collisions in excess of $1,000.00 combined damage must also be reported to a law enforcement agency.

Traffic Accident Reports (TARs) are produced for all reportable traffic accidents occurring on public highways (roadways). These accidents involve a motor vehicle as defined under *The Highway Traffic Act* in collision with another motor vehicle, a pedestrian, a train, a bicycle, animals or inanimate objects such as buildings, trees, hydro poles, or embankments alongside a highway.

Traffic accident reports must also be completed for reportable traffic accidents involving snowmobiles and all-terrain motor vehicles, etc. as defined under *The Off-Road Vehicles Act*. Off-road vehicle traffic collisions may occur on a public roadway, a ditch alongside a roadway, a groomed trail, a bush road, lakeshore, riverbank, floodway, or any other public property.

Law enforcement personnel record the following on a traffic accident report:

- Roadway description
- Light and weather conditions
- Traffic control information
- Major contributing factors to collision causation,
  - Driver action
  - Human condition
  - Vehicle condition
  - Environmental condition
- Vehicle types
- Driver/victim information,
  - Age
  - Gender
  - Injury severity
  - Seatbelt usage

The Traffic Collision Statistic Report comprises two parts. Part 1, Driver, Vehicle and Traffic Collision Statistics, contains twelve sections. Section 1, Historical Trends, presents a comparison of collision data to driver licencing and vehicle registration statistics for the years 1989 to 1998. Section 2, Licenced Drivers and Section 3, Vehicle Registrations utilize information contained in the Division's master computer files to illustrate 1998 licencing and vehicle registration activity. Collision statistics from the 1998 traffic accident reports form the basis for the following sections: Traffic Collisions (Section 4), Collision Victims (Section 5), Pedestrian Victims (Section 6), Vehicle Involvement (Section 7), Driver Involvement (Section 8), Contributing Factors (Section 9), National Safety Code Monitoring Report (Section 10), and Off-Road Vehicle Collisions (Section 11). Section 12, Alcohol-Related Criminal Code Convictions, presents data on drinking and driving statistics in Manitoba from 1986 to 1997.

Part 2, Traffic Engineering Traffic Collision Statistics Report contains three sections. In Section 1, Provincial Highway Collisions, traffic accidents occurring on the provincial highway system are summarized according to three distinct locations: urban, suburban and rural. These categories are defined according to the legal, posted speed limit on the provincial highway system: urban category – 50-60 km/h; suburban category – 70-80 km/h and the rural category – 90-100 km/h. Section 2, Construction-Related Collision, provides an overview of traffic accidents within construction or maintenance zones on the highway system. Section 3, Intersection Collision Data, presents collision frequencies at intersections of provincial highways and other roadways.

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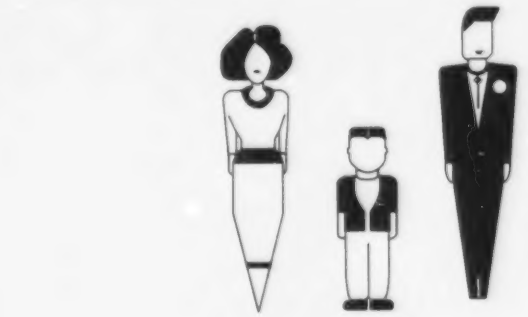
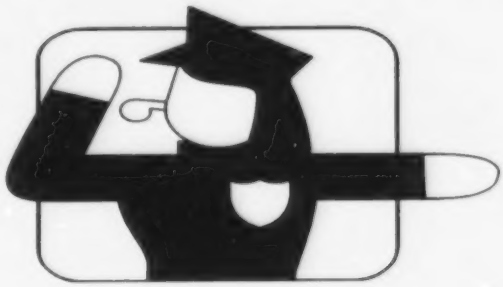
Abbreviation and Symbols

F	Female
M	Male
M/cycle	Motorcycle
N/A	Not Available
NS	Not Stated
NSC	National Safety Code
ORV	Off-Road Vehicles
P. Damage	Property Damage
TARs	Traffic Accident Reports
Ttl	Total
-.-	Minus or Negligible

Part 1

Driver, Vehicle and Traffic Collision Statistics Report





The Driver, Vehicle and Traffic Collision Statistics Report contains information obtained from all "reportable" traffic accidents in Manitoba. Collision statistics are presented in a series of tables and graphs depicting nationally recognized collision characteristics. These characteristics encompass all causal variables whether related to driver involvement, vehicle involvement or external physical environment, including the condition of the highway.

The first section of the report examines historical accident data in relation to the number of licenced drivers and vehicles registered each year. The ratio of collisions /1,000 licenced drivers and /1,000 vehicles registered is provided for a ten year period. In respect to fatal, injury and property damage collisions, the ratio /10,000 licenced drivers and /10,000 vehicles registered is presented.

Section 2, Licenced Drivers and Section 3, Vehicle Registrations utilize data contained in the master data files. Licenced driver statistics are examined by age and sex and whether or not the licences were active or suspended. Vehicle registration statistics examine registered vehicles according to three categories: Non-Commercial, Commercial, and Off-Road Vehicles.

Collision data obtained from traffic accident reports processed by the Division forms the basis for Sections 4 through 10.

Section 11, Off-Road Vehicle Collisions utilizes accident data obtained from traffic accident reports processed separately by the Research Section.

Section 12, Alcohol-Related Criminal Code Convictions uses data to highlight drinking and driving convictions in Manitoba from 1986 to 1997.

Annual collision statistics are used to:

- delineate trends,
- identify problem driver and vehicle factors,
- evaluate current programs and new provincial road safety initiatives,
- monitor commercial vehicle collisions in accordance with the National Safety Code,
- identify highway locations which may require improvement from a safety and a highway planning perspective, and
- guide development of new policies and programs to reduce the frequency and severity of traffic accidents in the province.

Other government agencies and organizations use the annually published collision data. These organizations include law enforcement agencies, research organizations, consultants, medical groups, and schools and universities having an interest in highway safety. Manitoba Public Insurance's Road Safety Department uses collision data to target and address safety issues from an insurance perspective. The Manitoba Safety Council uses collision data to develop driver improvement and other driver-related safety programs. On a national level, Transport Canada uses the collision data to maintain their fatal and injury accident data base development for national safety standards and to monitor highway safety across Canada.

Section 1

Historical Trends

Fatal, Injury, and Property Damage Collisions by Total Drivers[1] 1989 - 1998

Year	Total Drivers	Total Collisions	Collisions /1,000 Drivers	Total Fatal	Fatal /10,000 Drivers	Total Injury	Injury /10,000 Drivers	Total P. Damage	P. Damage /10,000 Drivers
1989	658543	39187	59.5	125	1.9	9448	143.5	29614	449.7
1990	664564	36211	54.5	104	1.6	9504	143.0	26603	400.3
1991	669598	38545	57.6	107	1.6	10689	159.6	27749	414.4
1992[2]	672960	30383	45.1	106	1.6	11245	167.1	19032	282.8
1993	672937	29435	43.7	106	1.6	10906	162.1	18423	273.8
1994	675659	29744	44.0	98	1.5	9706	143.7	19940	295.1
1995	680142	32398	47.6	108	1.6	8783	129.1	23507	345.6
1996	684798	29089	42.5	79	1.2	7509	109.7	21501	314.0
1997	687229	27113	39.5	101	1.5	6698	97.5	20334	295.9
1998	692941	27124	39.1	109	1.6	6879	99.3	20136	290.6

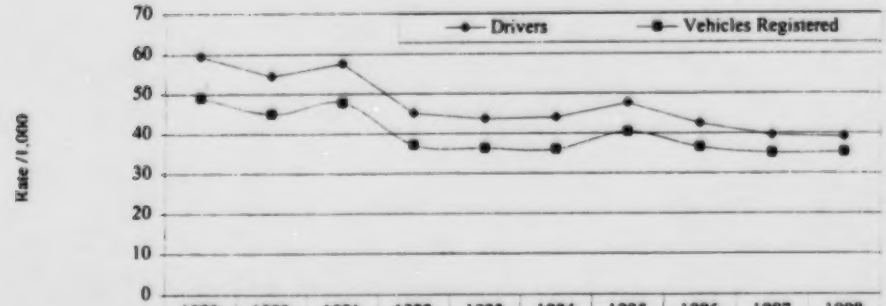
[1] Driver category refers to active and suspended. Active includes the annual average of drivers on file with a driver licence expiry date in the future. Suspended drivers refer to an annual average of drivers who are suspended.
[2] On January 1, 1992, the collision reporting threshold level increased from $500.00 to $1,000.00

Fatal, Injury, and Property Damage Collisions by Vehicles Registered[1] 1989 – 1998

Year	Vehicles Registered [2]	Total Collisions	Collisions /1,000 Vehicles	Total Fatal	Fatal /10,000 Vehicles	Total Injury	Injury /10,000 Vehicles	Total P. Damage	P. Damage /10,000 Vehicles
1989	798674	39187	49.1	125	1.6	9448	118.3	29614	370.8
1990	805271	36211	45.0	104	1.3	9504	118.0	26603	330.4
1991	806090	38545	47.8	107	1.3	10689	132.6	27749	344.2
1992[3]	818783	30383	37.1	106	1.3	11245	137.3	19032	232.4
1993	811503	29435	36.3	106	1.3	10906	134.4	18423	227.0
1994	827180	29744	36.0	98	1.2	9706	117.3	19940	241.1
1995	802510	32398	40.4	108	1.4	8783	109.4	23507	292.9
1996	796156	29089	36.5	79	1.0	7509	94.3	21501	270.1
1997	772162	27133	35.1	101	1.3	6698	86.7	20334	263.3
1998	770268	27124	35.2	109	1.4	6879	89.3	20136	261.4

[1] Vehicles registered include cancellations during the registration year.
[2] Vehicles registered exclude off-road vehicles, snow vehicles (HTA), trailers (HTA), tractors other than farm and PSV trailers.
[3] On January 1, 1992, the collision reporting threshold increased from $500.00 to $1,000.00.

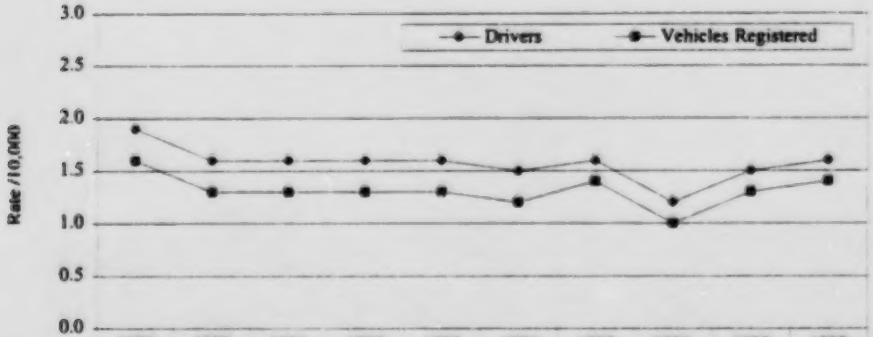
Total Collisions /1,000 Drivers and Vehicles Registered 1989 - 1998



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Drivers	59.5	54.5	57.6	45.1	43.7	44.0	47.6	42.5	39.5	39.1
Vehicles Registered	49.1	45.0	47.8	37.1	36.3	36.0	40.4	36.5	35.1	35.2

This graph represents a 10-year history of collision rates by drivers and registered vehicles. Reporting definitions must be considered when looking at past trends. Changes to the reporting thresholds have resulted in large decreases in property damage only collisions during 1992.

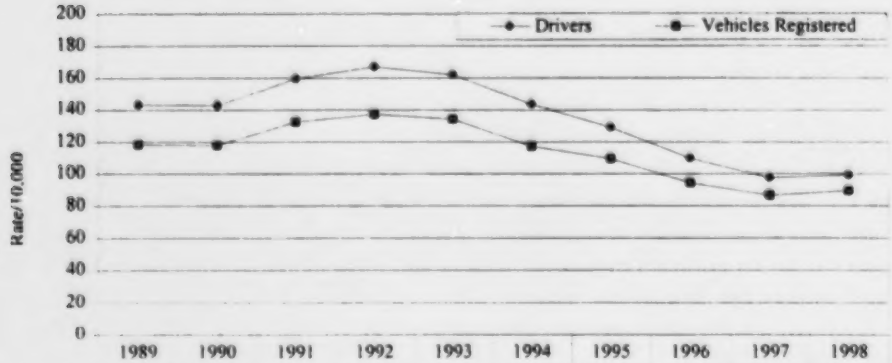
Fatal Collisions /10,000 Drivers and Vehicles Registered 1989 - 1998



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Drivers	1.9	1.6	1.6	1.6	1.6	1.5	1.6	1.2	1.5	1.6
Vehicles Registered	1.6	1.3	1.3	1.3	1.3	1.2	1.4	1.0	1.3	1.4

Fatal collisions remained at a relatively stable level between 1990-1995, decreased significantly in 1996, then returned to the previous level of 1995.

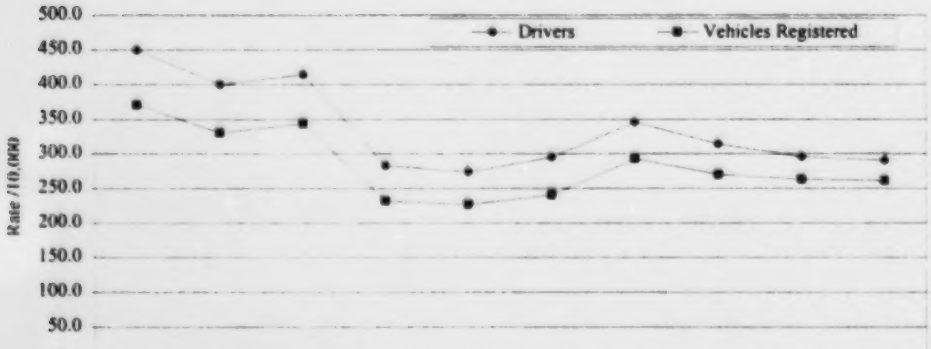
Injury Collisions /10,000 Drivers and Vehicles Registered 1989 - 1998



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Drivers	143.5	143.0	159.6	167.1	162.1	143.7	129.1	109.7	97.5	99.3
Vehicles Registered	118.3	118.0	132.6	137.3	134.4	117.3	109.4	94.3	86.7	89.3

Injury collision rates rose between 1990 and 1992 then steadily declined until 1997 when it reached the lowest recorded level in 10 years. In 1998, the injury collision rate by vehicles registered rose by 3.0% over 1997 and injury collision rates by drivers rose 1.8%.

Property Damage Collisions /10,000 Drivers and Vehicles Registered 1989 - 1998



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Drivers	449.7	400.3	414.4	282.8	273.8	295.1	345.6	314.0	295.9	290.6
Vehicles Registered	370.8	330.4	344.2	232.4	227.0	241.1	292.9	270.1	263.3	261.4

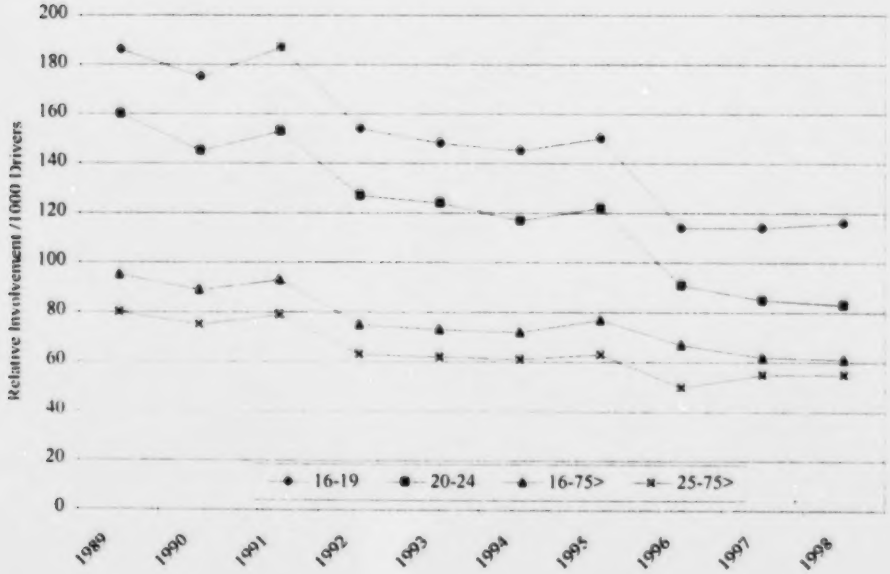
Changes to the reporting threshold account for the large decrease in property damage collision rates in both categories. Property damage collision rates by drivers decreased by 1.8% and property damage collision rates by vehicles registered decreased by 0.7%.

Relative Involvement /1,000 Drivers by Age Group 1989 – 1998

Age Group	Year									
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
16-19	186	175	187	154	148	145	150	114	114	116
20-24	160	145	153	127	124	117	122	91	85	83
25-34	103	96	104	84	83	80	85	65	61	59
35-44	80	76	81	64	62	63	64	52	49	48
45-54	72	66	69	54	53	54	57	48	44	43
55-64	61	59	60	47	46	47	48	41	37	38
65-74	53	53	53	39	41	41	42	36	33	33
75>	56	55	53	45	43	43	45	32	27	30
All Ages 16-75>	95	89	93	75	73	72	77	67	62	61
All Ages 25-75>	80	75	79	63	62	61	63	50	55	55

Relative involvement rates indicate 16-19 year olds are more likely to be involved in collisions than any other age group. For instance, the relative involvement rates for "all ages 16-75>" are higher than for the "all ages 25-75>" group. *These relative involvement rates do not take into account the number of vehicle kilometres travelled by each age group in a given year.*

Relative Involvement /1,000 Drivers by Selected Age Group 1989 – 1998



Section 2

Licenced Drivers

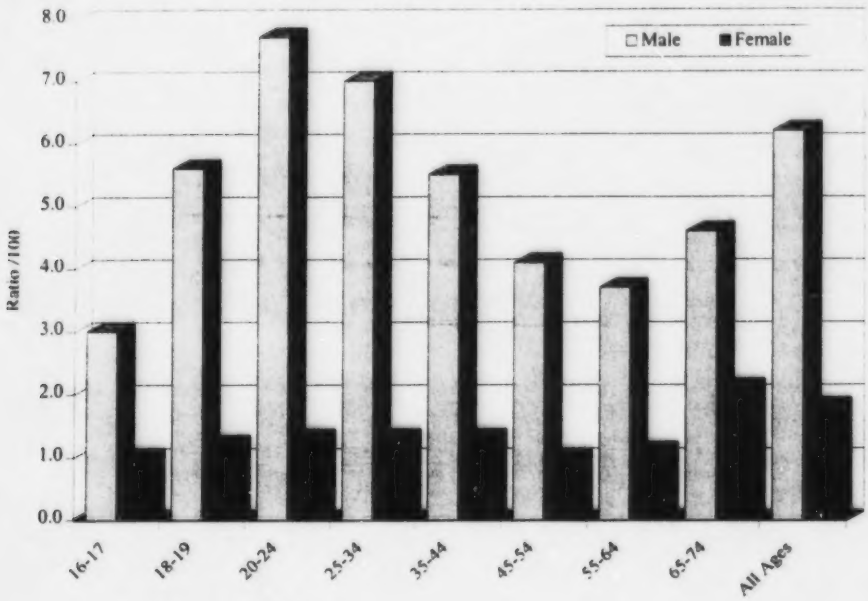
By Age Group, Sex, and Driver Status
1998

Age Group	Sex	Active Drivers	Suspended Drivers	Total Drivers	%	Suspended /100 Drivers
16-17	M	10780	339	11119		3.0
	F	9901	103	10004		1.0
	Total	20681	442	21123	3.1	2.1
18-19	M	11272	666	11938		5.6
	F	10335	125	10460		1.2
	Total	21607	791	22398	3.2	3.5
20-24	M	27943	2327	30270		7.7
	F	26624	339	26963		1.3
	Total	54567	2666	57233	8.3	4.7
25-34	M	61913	4654	66567		7.0
	F	59517	811	60328		1.3
	Total	121430	5465	126895	18.3	4.3
35-44	M	78484	4577	83061		5.5
	F	74300	997	75297		1.3
	Total	152784	5574	158358	22.8	3.5
45-54	M	64456	2772	67228		4.1
	F	59668	613	60281		1.0
	Total	124124	3385	127509	18.4	2.7
55-64	M	41449	1588	43037		3.7
	F	36047	419	36466		1.1
	Total	77496	2007	79503	11.5	2.5
65-74	M	31886	1543	33429		4.6
	F	26149	563	26712		2.1
	Total	58035	2106	60141	8.7	3.5
75-84 *	M	16488	2301	18789		12.2
	F	12954	1091	14045		7.8
	Total	29442	3392	32834	4.7	10.3
85> *	M	2591	2263	4854		46.6
	F	1223	870	2093		41.6
	Total	3814	3133	6947	1.0	45.1
All Ages	M	347262	23030	370292		6.2
	F	316718	5931	322649		1.8
	Total	663980	28961	692941	100.0	4.2

Active driver refers to the annual average of drivers on file with a driver licence expiry date in the future in any given month. Suspended drivers refer to an annual average of drivers who are suspended in any given month.

* The age groups 75-84 and 85> display a comparatively higher number of suspensions as these drivers are indefinitely suspended for medical reasons.

Comparison of Male and Female Suspended Drivers
/100 Drivers*
1998



* The age groups 75-84 and 85> are not displayed.

Total Licenced Drivers
by Year and Driver Status
1989 - 1998

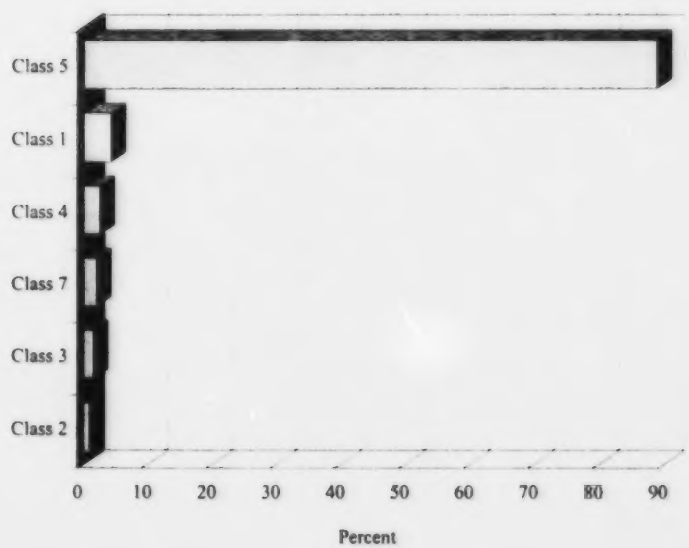
Licencing Year	Active Drivers	Suspended Drivers	Total Drivers
1989	634198	24345	658543
1990	638444	26120	664564
1991	642699	26899	669598
1992	645848	27112	672960
1993	646108	26829	672937
1994	648776	26883	675659
1995	652220	27922	680142
1996	655566	29232	684798
1997	658602	28627	687229
1998	663980	28961	692941

By Licence Class, Driver Status, and Sex
1998

Licence Class	Active Drivers				Suspended Drivers				Total	%
	Male	Female	S/Total	%	Male	Female	S/Total	%		
1.0	20224	907	21131	3.2	661	10	671	2.3	21802	3.1
1.6[1]	7116	84	7200	1.0	115	1	116	0.4	7316	1.1
2.0	3716	1369	5085	0.8	94	8	102	0.4	5187	0.7
2.6[1]	1100	87	1187	0.2	12	1	13	-.-	1200	0.2
3.0	7789	275	8064	1.2	267	4	271	0.9	8335	1.2
3.6[1]	2285	22	2307	0.3	37	0	37	0.1	2344	0.3
4.0	9997	3762	13759	2.1	518	51	569	2.0	14328	2.1
4.6[1]	2618	175	2793	0.4	37	3	40	0.1	2833	0.4
5.0	258473	299276	557749	84.0	19071	5349	24420	84.4	582169	84.0
5.6[1]	29290	3645	32935	5.0	847	33	880	3.1	33815	4.9
6.0	17	9	26	-.-	5	0	5	-.-	31	-.-
7.0	4637	7107	11744	1.8	1366	471	1837	6.3	13581	2.0
Total	347262	316718	663980	100.0	23030	5931	28961	100.0	692941	100.0

1. .6 refers to a motorcycle licence held in conjunction with another class of class.

Distribution of Total Drivers
by Licence Class[1]
1998



1. Licence Class .6 motorcycle designation included with whole number.

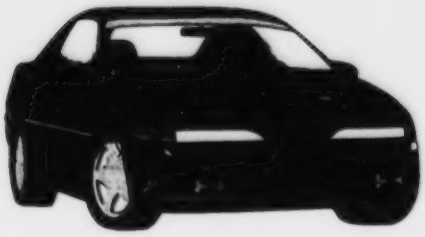
Class Licence System Quick Reference Chart

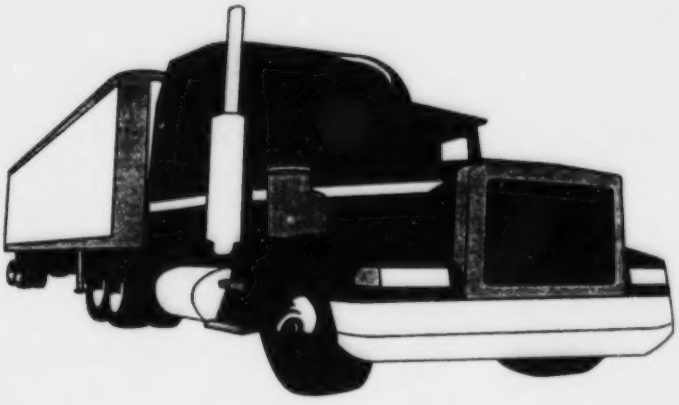
Licence Class	Description
1	Class 1 licence permits the holder to operate all motor vehicles or combination of vehicles, semi-trailers, trucks, buses, etc., including all vehicles in Classes 2, 3, 4, and 5.
2	Class 2 licence permits the holder to operate all vehicles except vehicles in Class 1 and 6.
3	Class 3 licence permits the holder to operate all motor vehicles except vehicles in Classes 1, 2, and 6.
4	Class 4 licence permits the holder to operate all motor vehicles except vehicles in Classes 1, 2, 3, and 6.
5	Class 5 licence permits the holder to operate a Class 5 motor vehicle and a Class 3 motor vehicle if it is registered as a farm truck.
6	Class 6 licence permits the holder to operate a motorcycle. Operation of vehicles in Classes 1 to 5 are prohibited, unless the Class 6 licence is held in conjunction with Class 1, 2, 3, 4 or 5 licence.
7	Class 7 licence permits the holder to drive as a learner within Classes 1 to 5, if shown on the licence, and accompanied by a licenced driver with at least 24 months driving experience in that class of vehicle. Class 7 licence may be used in conjunction with a valid motorcycle instruction permit.

Vehicle Classification Quick Reference Chart

Vehicle Class	Description
1	Semi-trailer trucks.
2	Buses having a seating capacity of over 24 passengers, while carrying passengers, and school buses having a seating capacity of over 36 passengers, while carrying passengers.
3	Trucks with more than two axles, including any combination of vehicles, or trucks with not more than two axles towing a vehicle with a registered gross vehicle weight (GVW) of more than 4,540 kg. but does not include a semi-trailer truck.
4	Taxis, ambulances, and any other emergency vehicles and buses having a seating capacity not exceeding 24 passengers, while carrying passengers, or school buses having a seating capacity not exceeding 36 passengers, while carrying passengers.
5	Passenger cars, a bus while not carrying passengers, a truck with not more than two axles, and any combination of vehicles consisting of a truck with not more than two axles and a towed vehicle with a registered gross vehicle weight (GVW) of not more than 4, 540 kg.
6	Motorcycles.

Section 3





Vehicle Registrations

By Non-Commercial Vehicle Class
1998

Vehicle Class[1]	Total	%
Passenger	516568	66.7
Antique	86	-.-
Motorcycle/Moped	7929	1.0
Truck	122725	15.9
Farm Truck	51805	6.7
Snow Vehicle	66	-.-
Trailer	74936	9.7
Tractor (Other than Farm-type)	149	-.-
Total Vehicles Registered	774264	100.0
Cancellations	112947	
Final Total[2]	661317	
Off-Road Vehicles (*The Off-Road Vehicles Act*)		
Total ORV Registered	19957	
Cancellations	614	
Final Total[2]	19343	

1. For definition of these motor vehicle classes refer to the glossary.
2. Vehicles registered in the period March 1, 1998 to February 28, 1999.

By Commercial Vehicle Class
1998

Vehicle Class[1]	Total	%
Commercial Truck	25035	35.2
Public Service Vehicle Truck	6062	8.5
Dealer and Repairer	13390	18.8
Taxi/Livery	888	1.3
Public Service Vehicle Bus	143	0.2
Commercial Trailer[3]	25637	36.0
Public Service Vehicle Trailer	20	-.-
Total Vehicles Registered	71175	100.0
Cancellations	5471	
Final Total [2]	65704	

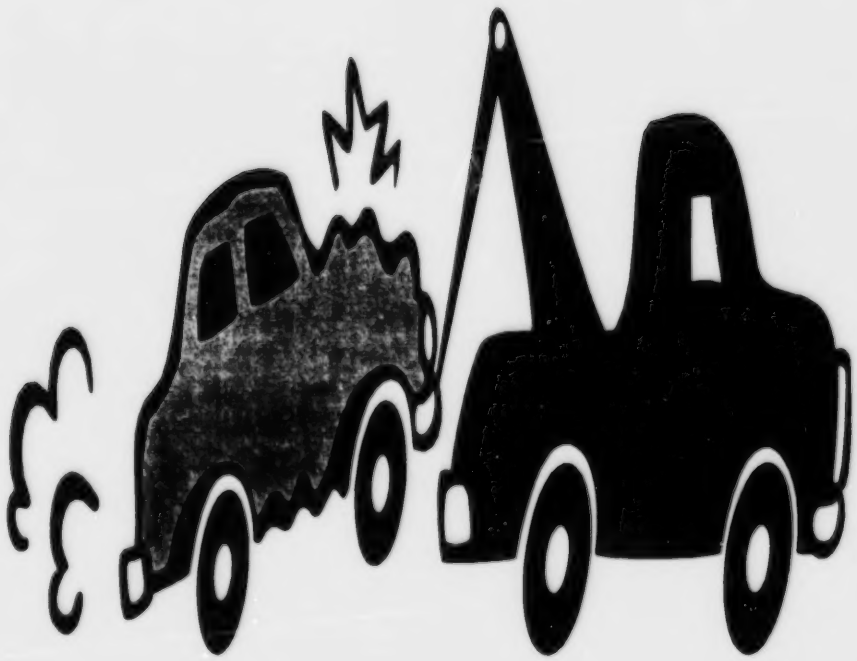
1. For definition of these motor vehicle classes refer to the glossary.
2. Vehicles registered in the period March 1, 1998 to February 28, 1999.
3. Trailers used in a commercial business.

Ten Year Summary
1989 – 1998

Registration Class	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Vehicle Class (Non-Commercial)										
Passenger	536649	539784	541017	548323	549980	555741	536565	543249	519922	516568
Delivery Car[1]	467	445	295	240	197	171	N/A	N/A	N/A	N/A
Antique	30	21	54	77	115	96	55	54	54	86
Motorcycle/Moped	12282	11680	11751	11122	10411	9932	9542	8290	8239	7929
Truck	126751	127958	126522	127981	128858	131926	125232	120856	119984	122725
Farm Truck	64911	65002	64002	64662	63671	63367	65526	56924	53480	51805
Snow Vehicle	136	134	135	133	76	76	77	70	75	66
Trailer	87247	88029	89131	90377	90817	94005	107375	79574	75638	74936
Tractor (non-farm)	191	217	219	208	190	194	197	217	198	149
Subtotal	828664	833270	833126	843123	844315	855508	844569	809234	777590	774264
Less Cancellations	100804	102480	101904	104697	108507	107058	88283	124306	121277	112947
Total	727860	730790	731222	738426	735808	748450	756286	684928	656313	661317
Commercial Vehicle Class										
Truck	26096	25845	25809	27380	27857	28904	26424	23648	24188	25035
PSV – Truck	4580	5017	4580	4897	5079	5253	5091	4984	5700	6062
U-Drive Car/Truck[2]	2438	2446	2533	2267	N/A	N/A	N/A	N/A	N/A	N/A
Dealer/Repairer	4712	4850	4878	4856	5112	5853	6141	7026	7128	13390
Taxi/Livery	909	832	868	841	852	840	866	963	1058	888
PSV-Bus	154	166	174	159	164	161	148	153	146	143
Trailers[3]	18695	21225	23607	25978	19207	24936	26920	30009	32263	25637
PSV-Trailers	26	17	14	14	11	20	18	18	17	20
Subtotal	57610	60398	62463	66392	58282	65967	65608	66801	70500	71175
Less Cancellations	4160	5081	4405	4108	3498	3723	5189	6141	6572	5471
Total	53450	55317	58058	62284	54784	62244	60419	60660	63928	65704
Total Registrations	781310	786107	789280	800710	790592	810694	816705	745588	720241	727021
Off-Road Vehicles										
Registrations	29410	35664	21135	29978	35890	36706	23865	21884	21061	19957
Less Cancellations	1714	486	393	1182	467	2	1146	1464	949	614
Total	27696	35178	20742	28796	35423	36704	22719	20420	20112	19343

1. After 1995 delivery car included in regular passenger classification.
2. U-drive car and trucks combined with regular vehicle classes March 1993.
3. Commercial trailers including semi-trailers.

Section 4



Traffic Collisions

Ten Year Summary
1989 – 1998

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total Collisions	39187	36211	38545	30383	29435	29744	32398	29089	27133	27124
Fatal	125	104	107	106	106	98	108	79	101	109
Injury	9448	9504	10689	11245	10906	9706	8783	7509	6698	6879
P. Damage	29614	26603	27749	19032	18423	19940	23507	21501	20334	20136
Total Victims	13475	13571	15369	16222	15751	13951	12266	10560	9267	9652
Killed	155	121	119	118	134	119	128	93	119	121
Injured	13320	13450	15250	16104	15617	13832	12138	10467	9148	9531
Total Vehicles Involved	67188	62737	66565	52741	51362	51099	55392	49712	45959	46005
Fatal	198	162	153	164	161	161	188	115	147	170
Injury	17356	17571	19992	21081	20573	18140	16120	13428	11955	12371
P. Damage	49634	45004	46420	31496	30628	32798	39084	36169	33857	33464
Total Drivers Involved	60378	56794	59965	48343	47260	46651	50319	46020	42324	42578
Fatal	192	153	145	152	150	152	171	110	142	164
Injury	16633	16820	19186	20344	19852	17421	15530	12891	11487	11908
P. Damage	43553	39821	40634	27847	27258	29078	34618	33019	30695	30506

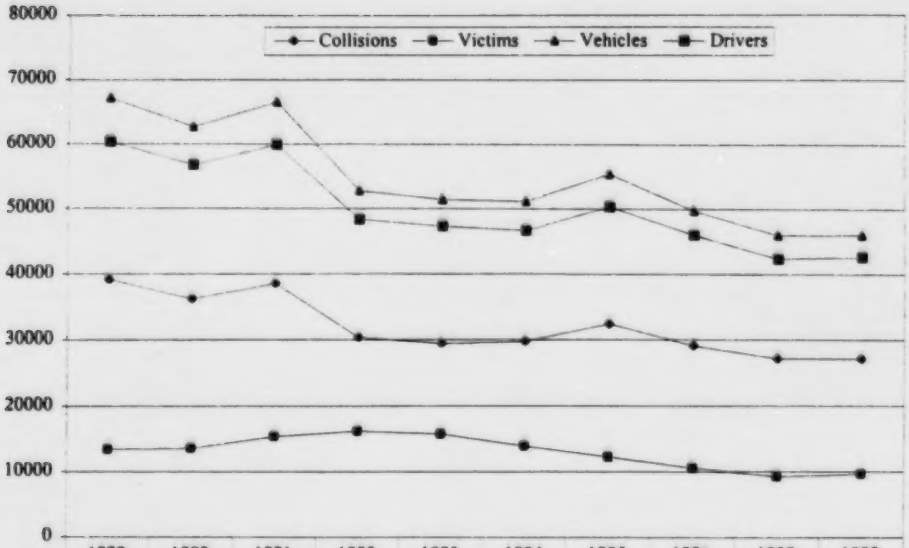
In 1998 there were 27,124 reportable traffic accidents – nine fewer than in 1997. However, the number of fatal collisions increased by 7.9% from 101 in 1997 to 109 in 1998. Injury collisions increased by 2.7% from 6,698 in 1997 to 6,879 in 1998. Property damage collisions decreased by 1.0% from 20,334 in 1997 to 20,136 in 1998.

The overall number of collision victims increased by 4.2% from 9,267 in 1997 to 9,652 in 1998. The number of victims killed increased by 1.7% from 119 in 1997 to 121 in 1998. The number of victims injured increased by 4.2% from 9,148 in 1997 to 9,531 in 1998.

There were a total of 46,005 vehicles involved in traffic collisions in 1998, 0.1% more than the 45,959 recorded in 1997. The number of vehicles involved in fatal traffic accidents increased by 15.6% from 147 in 1997 to 170 in 1998. The number of vehicles involved in injury collisions increased by 3.5% from 11,955 in 1997 to 12,371 in 1998. Property damage vehicle involvement decreased by 1.2% from 33,857 in 1997 to 33,464 in 1998.

The overall number of drivers involved in traffic collisions in 1998 increased by 0.6% from 42,324 in 1997 to 42,578 in 1998. The number of drivers involved in fatal collisions increased by 15.5% from 142 in 1997 to 164 in 1998. Drivers involved in injury collisions increased by 3.7% from 11,487 in 1997 to 11,908 in 1998. Drivers involved in property damage collisions decreased from 30,695 in 1997 to 30,506 in 1998, a 0.6% decrease.

Ten Year Summary
1989 – 1998



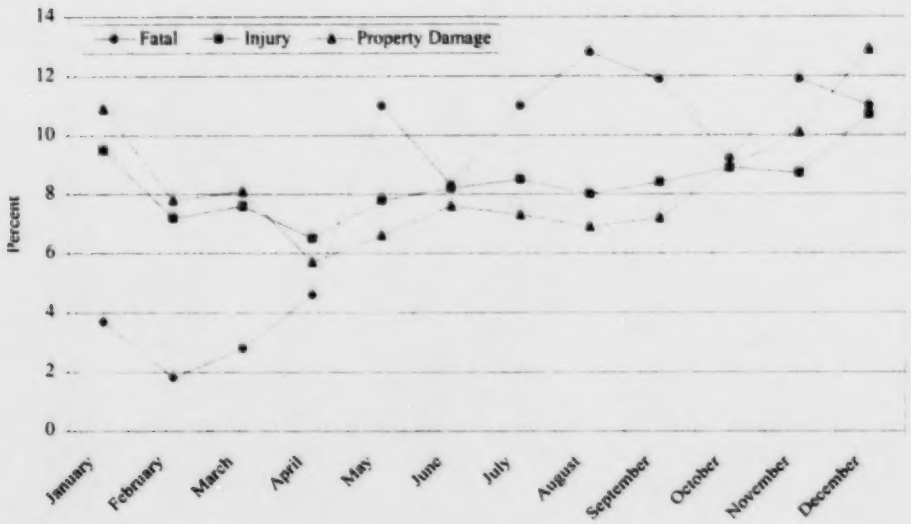
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Collisions	39187	36211	38545	30383	29435	29744	32398	29089	27133	27124
Victims	13475	13571	15369	16222	15751	13951	12266	10560	9267	9652
Vehicles	67188	62737	66565	52741	51362	51099	55392	49712	45959	46005
Drivers	60378	56794	59965	48343	47260	46651	50319	46020	42324	42578

By Month of Occurrence and Collision Type
1998

Month	Collision Type			Total	%
	Fatal	Injury	P. Damage		
January	4	651	2196	2851	10.5
February	2	496	1569	2067	7.6
March	3	525	1630	2158	8.0
April	5	448	1151	1604	5.9
May	12	535	1333	1880	6.9
June	9	565	1537	2111	7.8
July	12	584	1468	2064	7.6
August	14	551	1387	1952	7.2
September	13	576	1440	2029	7.5
October	10	612	1782	2404	8.9
November	13	602	2036	2651	9.8
December	12	734	2607	3353	12.3
Total	109	6879	20136	27124	100.0

January, November, and December accounted for 32.6% of the total collisions occurring in 1998. August (14) had the highest number of fatal collisions followed by September (13) and November (13). December (734) had the highest number of injury collisions followed by January (651). December (2607) had the highest number of property damage collisions followed by January (2196).

Comparison of Fatal, Injury, and Property Damage Collisions
by Month of Occurrence
1998

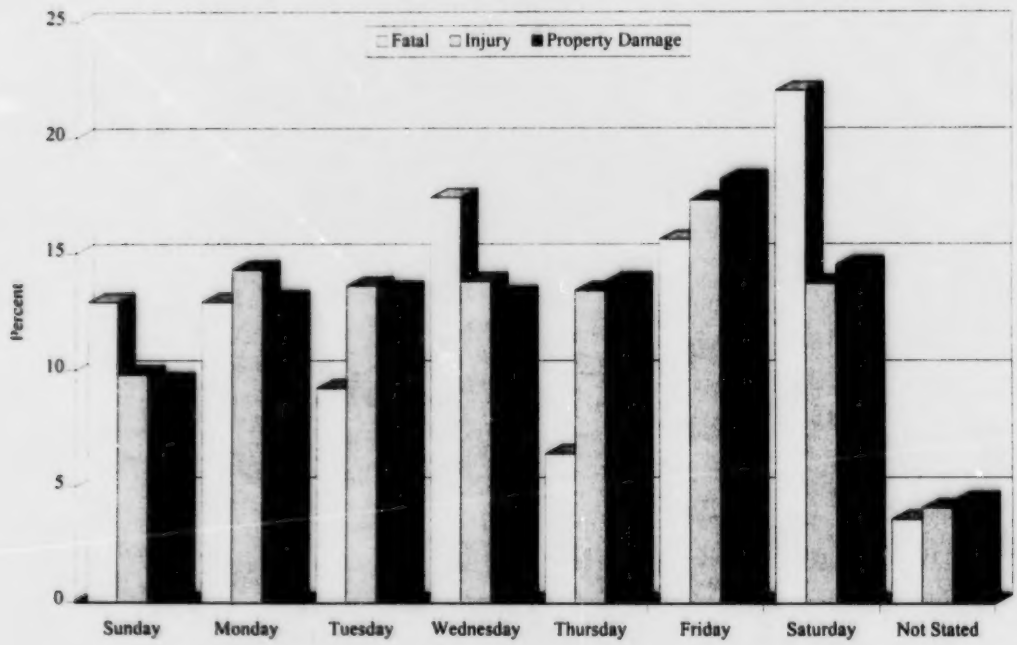


By Day of Occurrence and Collision Type
1998

Day	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Sunday	14	673	1918	2605	9.6
Monday	14	982	2616	3612	13.3
Tuesday	10	934	2697	3641	13.4
Wednesday	19	949	2657	3625	13.4
Thursday	7	920	2777	3704	13.7
Friday	17	1193	3674	4884	18.0
Saturday	24	947	2917	3888	14.3
Not Stated	4	281	880	1165	4.3
Total	109	6879	20136	27124	100.0

Overall, more accidents occurred on Friday (18.0%) than on any other day of the week. Fatal crashes occurred most often on weekends. Collisions that resulted in deaths occurred more frequently on Fridays and Saturdays (15.6% and 22.0% respectively), while fewest fatal collisions took place on Thursdays, at 6.4%. Injury collisions happened most often on Fridays and Mondays (17.3% and 14.3%), while these crashes occurred least often on Sundays, at 9.8%.

Comparison of Fatal, Injury, and Property Damage Collisions
by Day of Occurrence
1998

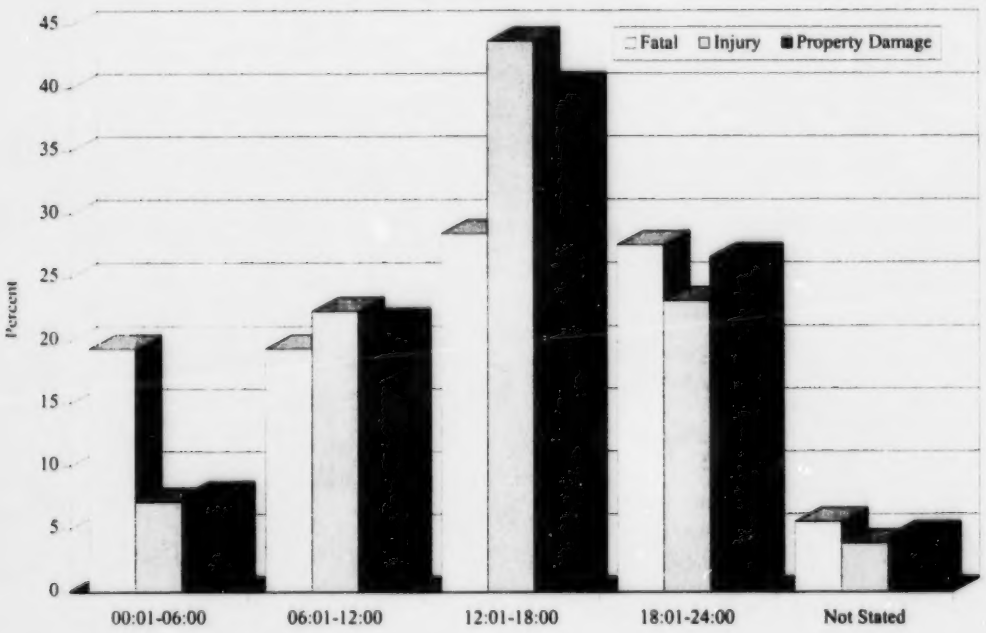


By Time of Occurrence and Collision Type
1998

Time	Collision Type			Total	%
	Fatal	Injury	P. Damage		
00:01 - 06:00	21	489	1536	2046	7.5
06:01 -12:00	21	1537	4315	5873	21.6
12:01 - 18:00	31	3007	8068	11106	41.0
18:01 - 24:00	30	1586	5323	6939	25.6
Not Stated	6	260	894	1160	4.3
Total	109	6879	20136	27124	100.0

Overall, the highest incidence of traffic collisions (41.0%) occurred within the time period 12:01 - 18:00 hours. In 1998, collisions were approximately one and half times more likely to occur in this time frame than in the 18:01 – 24:00 time period and nearly 1.9 times likelier to occur than in the 06:01 – 12:00 time period. However, the frequency of fatal collisions was very close for both the 12:01 – 18:00 and 18:01 - 24:00 time periods. Collisions that resulted in fatalities occurred slightly less frequently during the period from 00:01 to 12:00 noon. Almost half (43.7%) of all injury-producing collisions took place between 12:01 p.m. and 18:00.

Comparison of Total Traffic Collisions
by Time of Occurrence and Collision Type
1998



By Collision Type and Urban/Rural Location
1998

Collision Type	Location												
	Urban				Rural				Provincial Total				%
	Collision Type												
	Fatal	Injury	P. Damage	Total	Fatal	Injury	P. Damage	Total	Fatal	Injury	P. Damage	Total	
Pedestrian	13	452	7	472	9	14	0	23	22	466	7	495	1.8
Motor Vehicle	8	4342	13620	17970	37	451	878	1366	45	4793	14498	19336	71.3
Train	0	7	3	10	4	8	5	17	4	15	8	27	0.1
Motorcycle	0	55	28	83	2	18	9	29	2	73	37	112	0.4
Bicycle	2	285	15	302	2	4	0	6	4	289	15	308	1.2
Animal	0	9	143	152	0	125	2230	2355	0	134	2373	2507	9.3
Fixed Object	3	216	1404	1623	0	74	248	322	3	290	1652	1945	7.2
Other Object	0	7	48	55	1	15	76	92	1	22	124	147	0.5
Overturned	0	4	9	13	2	61	69	132	2	65	78	145	0.5
Ran Off Roadway	1	59	146	206	25	654	1024	1703	26	713	1170	1909	7.0
Other Non Collision	0	11	38	49	0	8	136	144	0	19	174	193	0.7
Collision/Moped	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Total	27	5447	15461	20935	82	1432	4675	6189	109	6879	20136	27124	100.0

In urban areas, the primary collision type was "motor vehicle to motor vehicle" which accounted for 85.8% of the total reportable collisions while in rural areas the primary collision type was "motor vehicle to animal" at 38.1 percent.

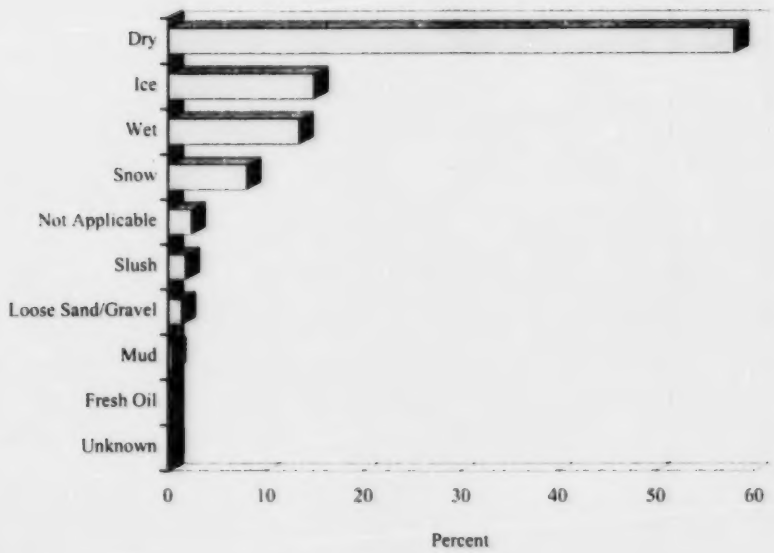
In 1998, fatal collisions occurred three times as often on rural roadways than in urban areas. In urban areas, "motor vehicle" and "pedestrian" were the primary fatal collision types, whereas in rural areas, "motor vehicle", "ran off roadway" and pedestrian" were the most frequently identified fatal collision types.

By Road Surface Condition and Collision Type
1998

Road Surface Condition	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Dry	76	4202	11457	15735	58.0
Wet	15	1056	2543	3614	13.4
Mud	0	19	71	90	0.3
Snow	4	424	1745	2173	8.0
Ice	6	829	3206	4041	14.9
Slush	1	128	340	469	1.7
Loose Sand/Gravel/Dirt	5	102	239	346	1.3
Fresh Oil	0	2	5	7	-.-
Not Applicable	2	116	502	620	2.3
Other	0	0	1	1	-.-
Unknown	0	1	27	28	0.1
Total	109	6879	20136	27124	100.0

Of the total traffic collisions, 58.0% occurred under "dry" road surface conditions. Ice, wet and snow-covered road surfaces accounted for 22.9% of fatal collisions, 33.6% of injury collisions, and 37.2% of property damage collisions.

Distribution of Total Collisions
by Road Surface Condition
1998

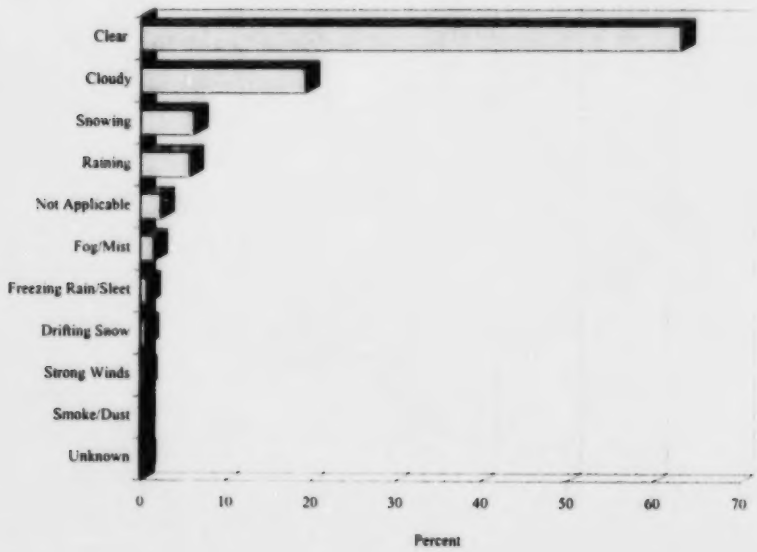


By Weather Condition and Collision Type
1998

Weather Condition	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Clear	71	4385	12686	17142	63.2
Cloudy	20	1404	3811	5235	19.3
Raining	5	422	1107	1534	5.7
Snowing	3	362	1316	1681	6.2
Fog or Mist	3	79	337	419	1.5
Smoke or Dust	0	7	29	36	0.1
Freezing Rain/Sleet/Hail	1	49	138	188	0.7
Drifting Snow	0	25	108	133	0.5
Strong Winds	1	18	49	68	0.3
Not Applicable	4	124	501	629	2.3
Unknown	1	4	51	56	0.2
Other	0	0	3	3	-.-
Total	109	6879	20136	27124	100.0

"Clear" weather conditions accounted for 63.2% of total traffic collisions and 65.1% of fatal traffic collisions. Inclement weather conditions, "cloudy", "raining", and "snowing" accounted for 25.7% of fatal collisions, 31.8% of injury collisions, and 31.0% of property damage collisions.

Distribution of Total Collisions
by Weather Condition
1998



By Provincial Location and Collision Type
1998

Location	Collision Type			Total	%	Collisions /1,000 Population[1]
	Fatal	Injury	P. Damage			
Winnipeg	21	4705	11561	16287	60.1	26.3
Brandon	0	221	944	1165	4.3	29.7
Portage la Prairie	0	59	307	366	1.3	28.0
Flin Flon	0	6	100	106	0.4	16.1
Dauphin	0	33	183	216	0.8	26.1
Thompson	1	38	263	302	1.1	21.0
The Pas	0	18	182	200	0.7	33.6
Selkirk	0	43	163	206	0.8	20.8
Other Urban	5	324	1758	2087	7.7	
Rural	82	1432	4675	6189	22.8	20.8
Total	109	6879	20136	27124	100.0	24.3

1. Based on 1996 rounded-up census statistics from Statistics Canada.

Of the total traffic collisions, 60.1% occurred within the City of Winnipeg, while 22.8% of the total collisions occurred in rural areas. However, rural roadway collisions accounted for 75.2% of total fatal collisions.

Distribution of Total Collisions
by Provincial Location /1,000 Population
1998

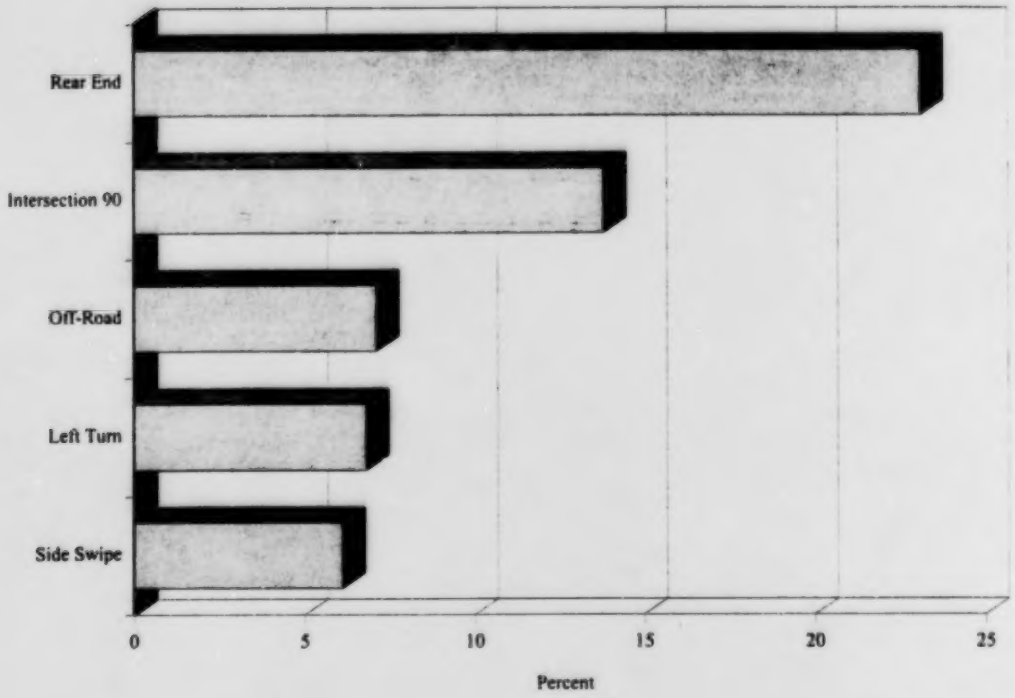
By Accident Configuration and Collision Type
1998

Configuration	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Rear End	1	2295	3957	6253	23.1
Head On	10	99	166	275	1.0
Side Swipe	2	60	282	344	1.3
Side Swipe	1	141	1164	1306	4.8
Overtaking	1	88	435	524	1.9
Right Turn	0	41	139	180	0.7
Right Turn	1	29	69	99	0.4
Left Turn	0	89	224	313	1.2
Left Turn	0	31	145	176	0.6
Left Turn	1	381	869	1251	4.6
Intersection 90°	24	1257	2474	3755	13.8
Off-Road Right	11	375	724	1110	4.1
Off-Road Left	9	317	484	810	3.0
Fixed Object	2	175	1103	1280	4.7
Parking	0	29	895	924	3.4
Pedestrian	18	380	9	407	1.5
Other[1]	28	1092	6997	8117	29.9
Total	109	6879	20136	27124	100.0

1. Accidents with two or more vehicles involved or more than one collision configuration.

"Rear-end", "90° intersection" and "off-road" configurations accounted for 44.0% of total traffic collisions. "Off-road", "90° intersection", and "pedestrian" configurations accounted for 56.9% of total fatal traffic collisions.

Comparison of Top Five Accident Configurations
1998



Section 5

Collision Victims

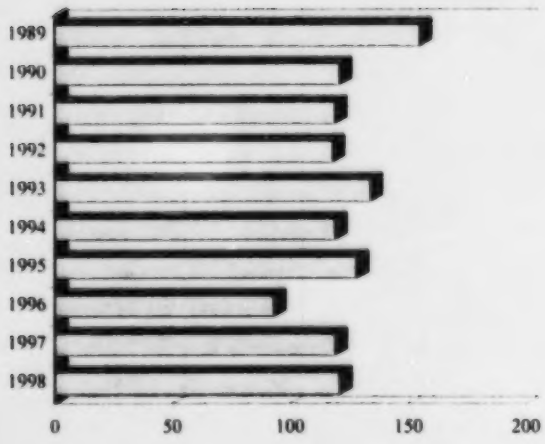
Ten Year Summary
1989 – 1998

Year	Injury Type		Total
	Killed	Injured	
1989	155	13320	13475
1990	121	13450	13571
1991	119	15250	15369
1992	118	16104	16222
1993	134	15617	15751
1994	119	13832	13951
1995	128	12138	12266
1996	93	10467	10560
1997	119	9148	9267
1998	121	9531	9652

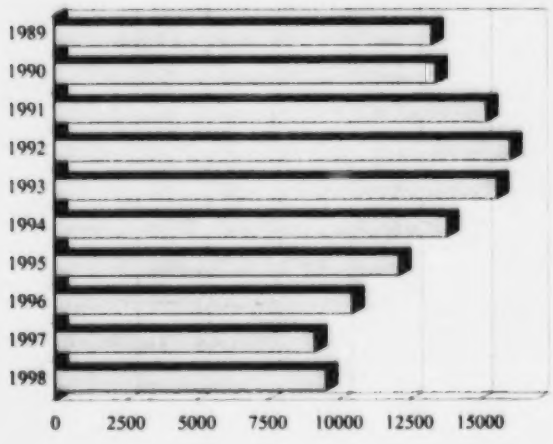
Although increases were recorded in the number of people killed and injured in traffic collisions between 1997 and 1998, the 1998 figures were well below the levels for 1989. While the number of people killed in traffic collisions rose by 1.7% from 119 in 1997 to 121 in 1998, the number dropped by 21.9% between 1989 (155) and 1998 (121). Similarly, while the number of injured collision victims rose by 4.2% from 9,148 in 1997 to 9,531 in 1998, the number dropped by 28.4% between 1989 (13,320) and 1998 (9,531).

Comparison of Collision Victims
Ten Year Summary
1989 – 1998

Killed



Injured

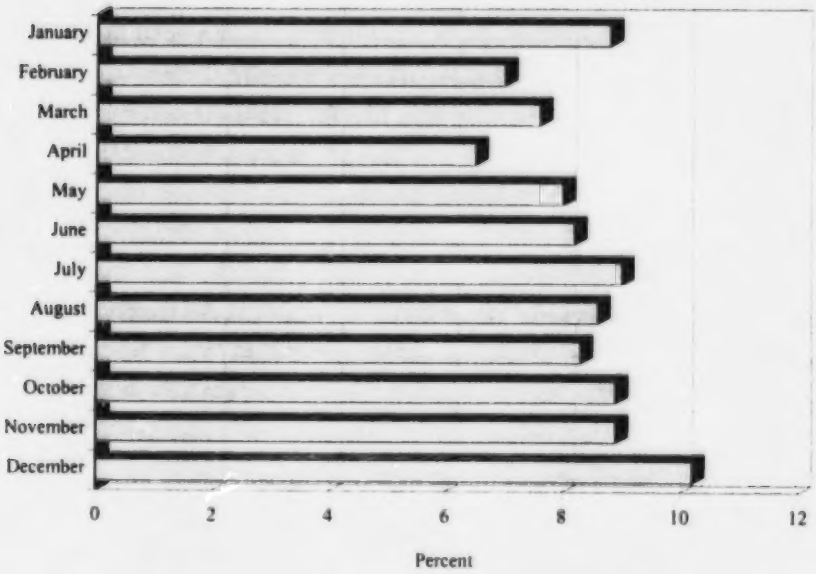


By Month of Occurrence and Injury Type
1998

Month	Injury Type		Total	%
	Killed	Injured		
January	4	842	846	8.8
February	2	678	680	7.0
March	5	726	731	7.6
April	5	621	626	6.5
May	15	760	775	8.0
June	9	784	793	8.2
July	16	849	865	9.0
August	14	817	831	8.6
September	15	786	801	8.3
October	10	844	854	8.9
November	13	850	863	8.9
December	13	974	987	10.2
Total	121	9531	9652	100.0

July (16) had the highest number of victims killed in traffic accidents followed by May (15) and September (15). December (974) had the highest number of victims injured, while April (621) had the fewest.

Distribution of Total Collision Victims
By Month of Occurrence
1998

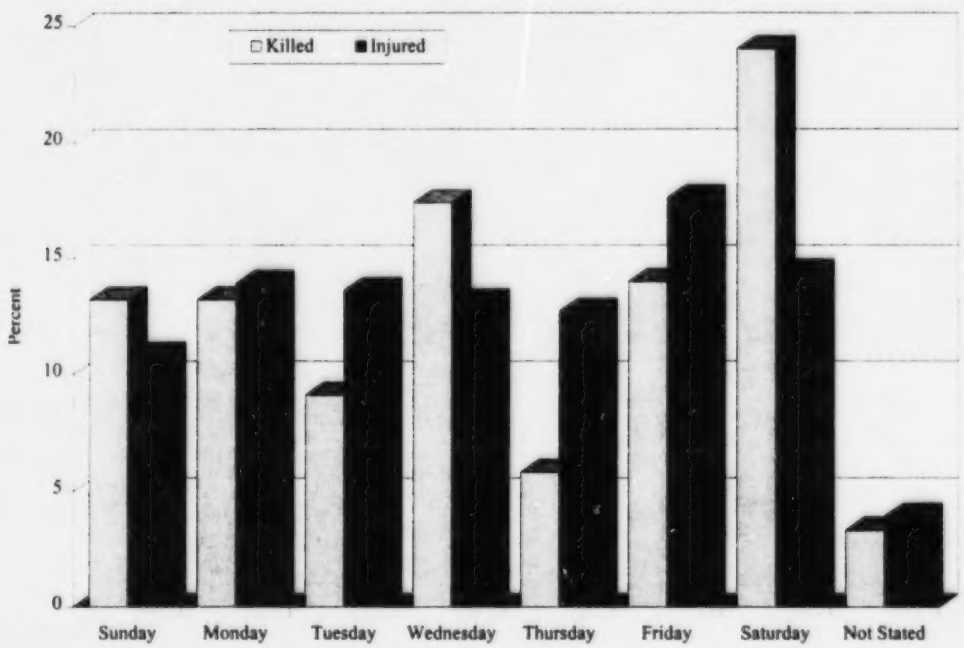


By Day of Occurrence and Injury Type
1998

Day	Injury Type		Total	%
	Killed	Injured		
Sunday	16	1026	1042	10.8
Monday	16	1324	1340	13.9
Tuesday	11	1299	1310	13.6
Wednesday	21	1244	1265	13.1
Thursday	7	1211	1218	12.6
Friday	17	1677	1694	17.6
Saturday	29	1374	1403	14.5
Not Stated	4	376	380	3.9
Total	121	9531	9652	100.0

Saturday and Wednesday accounted for 41.3% (50) of the total collision victims killed. Friday accounted for 14.0% (17) of the total collision victims killed, followed by Sunday and Monday, each at 13.2% (16). Friday accounted for the highest number of collision victims injured, 17.6% (1677), followed by Saturday with 14.4% (1374) and Monday with 13.9% (1324). Sunday had the least number of collision victims injured, 10.8% (1026).

Comparison of Collision Victims
by Injury Type and Day of Occurrence
1998

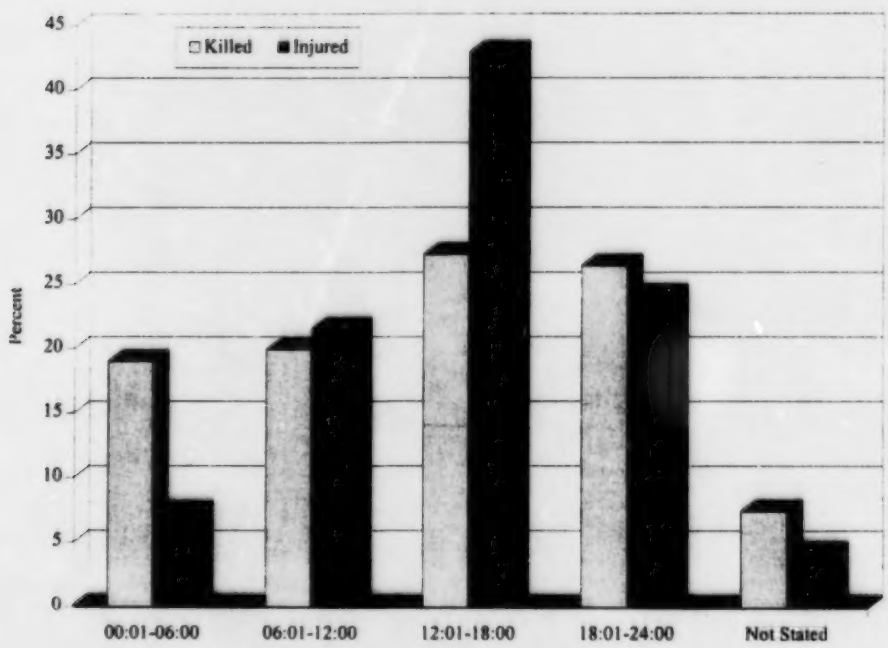


By Time of Occurrence and Injury Type
1998

Time	Injury Type		Total	%
	Killed	Injured		
00:01 - 06:00	23	694	717	7.4
06:01 - 12:00	24	2053	2077	21.5
12:01 - 18:00	33	4088	4121	42.7
18:01 - 24:00	32	2300	2332	24.2
Not Stated	9	396	405	4.2
Total	121	9531	9652	100.0

The time period 12:01 – 18:00 hours accounted for the highest percentage of collision victims killed, 27.3% (33) and the highest percentage of collision victims injured, 42.9% (4088). Fatal injuries occurred at almost the same level, 26.4% (32), in the 18:01 – 24:00 hours time period.

Comparison of Collision Victims
by Injury Type and Time of Occurrence
1998

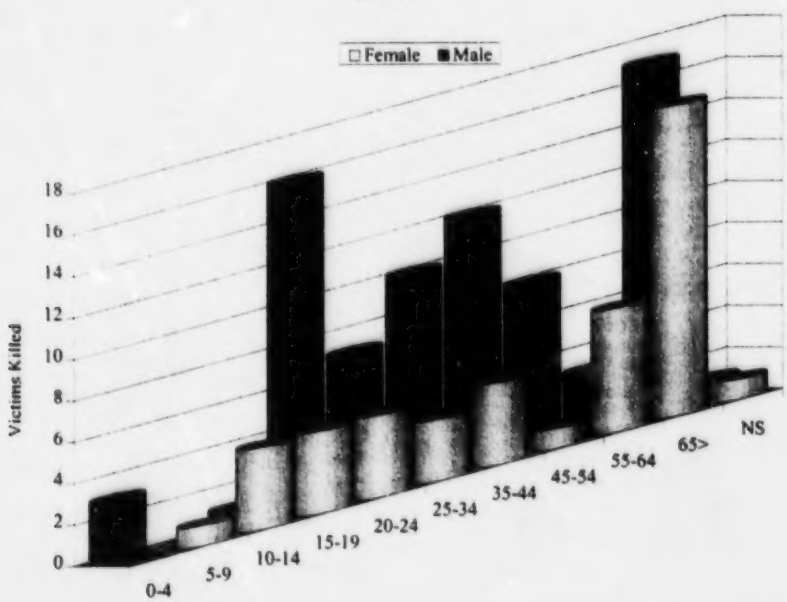


By Age Group, Injury Type and Sex
1998

Age Group	Injury Type								Grand Total	Victims /1,000 Population[1]
	Killed				Injured					
	Male	Female	N.S.[2]	Total	Male	Female	N.S.[2]	Total		
0-4	3	0	0	3	64	52	0	116	119	1.5
5-9	0	1	0	1	106	97	0	203	204	2.5
10-14	1	4	0	5	142	150	0	292	297	3.7
15-19	16	4	0	20	619	645	1	1265	1285	16.5
20-24	7	4	0	11	513	571	0	1084	1095	14.4
25-34	10	3	0	13	737	804	1	1542	1555	9.4
35-44	12	4	0	16	676	784	0	1460	1476	8.4
45-54	8	1	0	9	442	582	0	1024	1033	7.8
55-64	3	6	0	9	260	305	0	565	574	6.3
65 >	17	15	0	32	283	367	0	650	682	4.5
N.S.[2]	1	1	0	2	682	648	0	1330	1332	-.-
Total	78	43	0	121	4524	5005	2	9531	9652	8.7

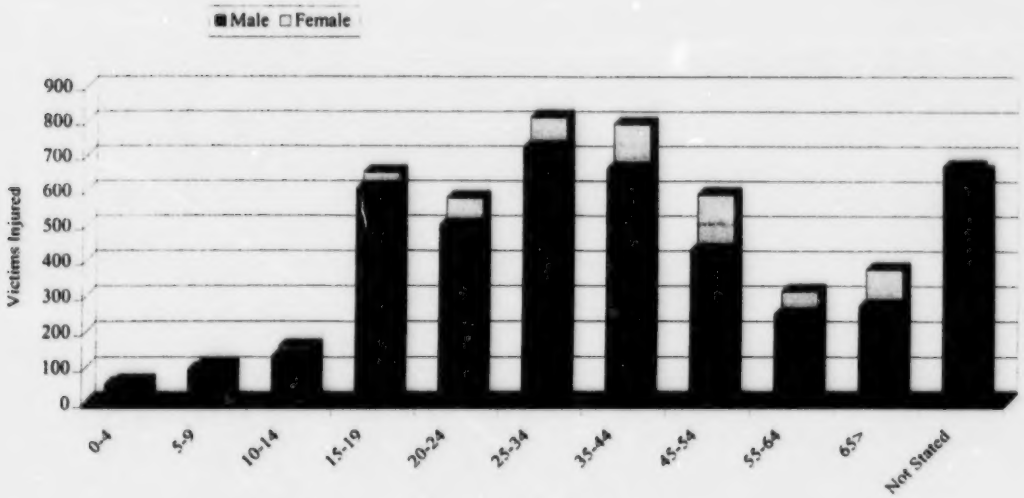
1. Based on 1996 rounded-up census statistics from Statistics Canada.
2. Not stated.

Comparison of Collision Victims Killed
by Age Group and Sex
1998



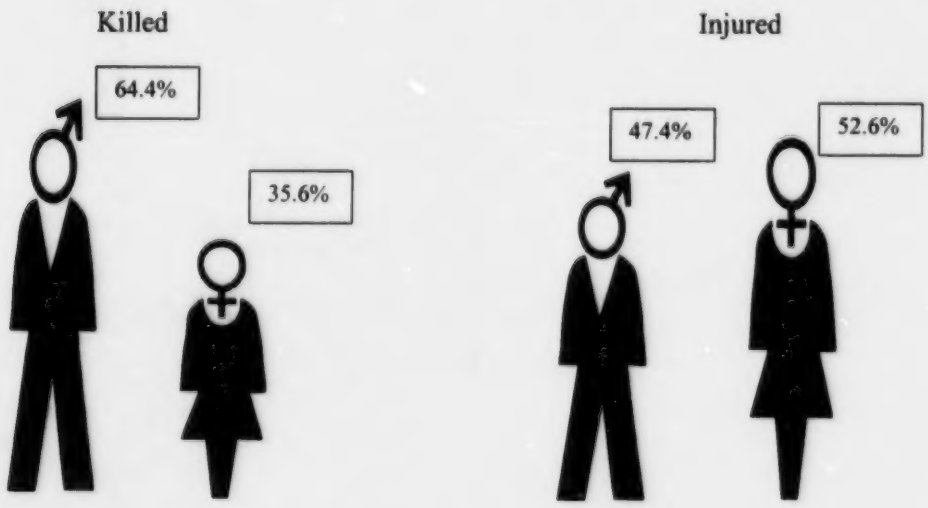
Male victims made up 47.7% (4602) of all casualties (persons killed or injured), females account for 52.3% (5048). The ratio has remained steady over the last few years. Of the total persons killed or injured, 16.1% (1555) were between the ages of 25 to 34. Although comprising only 13.7% of the total driving population, the age group 65> accounted for 26.4% (32) of the fatal victims, roughly 1.5 times greater than the next highest group.

Comparison of Collision Victims Injured by Age Group and Sex 1998



The number of female victims injured in all age groups is greater than for male victims with exception of the age group 0-9 years of age. Of the total victims injured, males account for 47.5% and females for 52.5%.

Comparison of Total Collision Victims by Injury Type and Sex 1998



Males are nearly twice as likely to be fatally injured in collisions than are females.

Total Collision Victims Killed by Road User Class and Age Group 1998

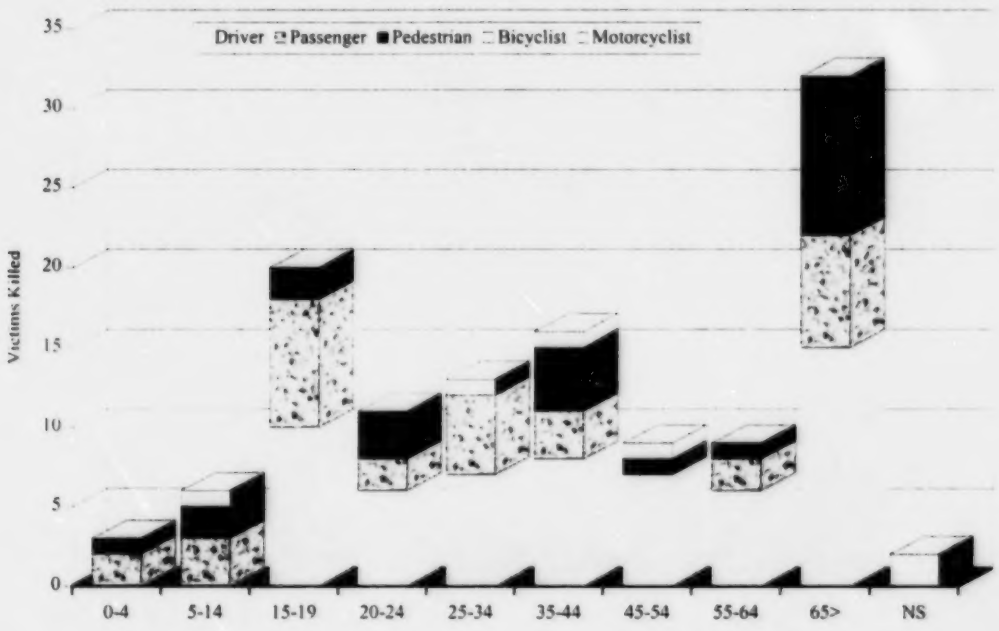
Road User Class	Age Group										Total	%
	0-4	5-14	15-19	20-24	25-34	35-44	45-54	55-64	65>	NS[1]		
Driver	0	0	10	6	7	8	7	6	15	0	59	49.2
Passenger	2	3	8	2	5	3	0	2	7	0	32	26.7
Pedestrian	1	2	2	3	0	4	1	1	10	0	24	20.0
Bicyclist	0	1	0	0	1	0	0	0	0	2	4	3.3
Motorcyclist[2]	0	0	0	0	0	1	1	0	0	0	2	0.8
Total	3	6	20	11	13	16	9	9	32	2	121	100.0

1. NS means not stated. 2. Includes passengers.

Among persons killed in traffic collisions, the majority were motor vehicle drivers (49.2%) and motor vehicle passengers (26.7%). Pedestrians comprised the next largest group of road users killed (20.0%), followed by bicyclists (3.3%) and motorcyclists (0.8%).

The 65 years and older age group accounted for 26.4% of fatally injured road users, followed by the 15-19 year group (16.5%) and the 35-44 age group (13.2%). Among road users in the 15-19 year old category, drivers and passengers were the two road-user classes that were most often killed (50.0% and 40.0% respectively). Among persons aged 65 years or older who were killed in traffic collisions, motor vehicle drivers were most often killed (46.9%), followed by pedestrians at 31.2%.

Comparison of Collision Victims Killed by Road User Class and Age Group 1998



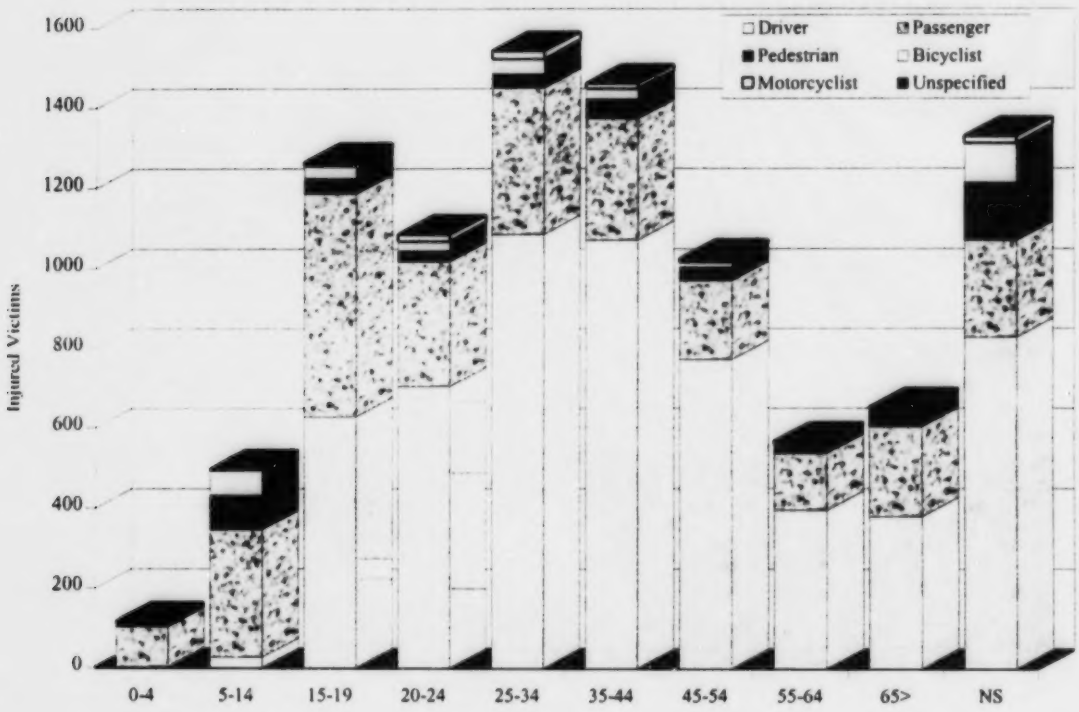
Total Collision Victims Injured by Road User Class and Age Group 1998

Road User Class	Age Group										Total	%
	0-4	5-14	15-19	20-24	25-34	35-44	45-54	55-64	65>	NS[1]		
Driver	3	27	627	703	1084	1070	770	394	378	826	5882	61.7
Passenger	100	318	558	313	365	302	198	140	223	242	2759	28.9
Pedestrian	12	87	40	28	36	50	34	24	40	145	496	5.2
Bicyclist	1	62	30	23	37	25	13	3	6	98	298	3.1
Motorcyclist[2]	0	1	8	17	20	13	8	4	3	17	91	1.0
Unspecified	0	0	2	0	0	0	1	0	0	2	5	0.1
Total	116	495	1265	1084	1542	1460	1024	565	650	1330	9531	100.0

1. NS means not stated. 2. Includes passengers.

Motor vehicle drivers and passengers accounted for 90.6% of road users injured. The remaining injured road users were distributed as follows: pedestrians 5.2%, bicyclists 3.1%, and motorcyclists 1.0%. Excluding age not stated, the 25-34 age group accounted for 18.8% of road users injured, followed by the 35-44 age group, at 17.8%.

Comparison of Collision Victims Injured by Road User Class and Age Group 1998

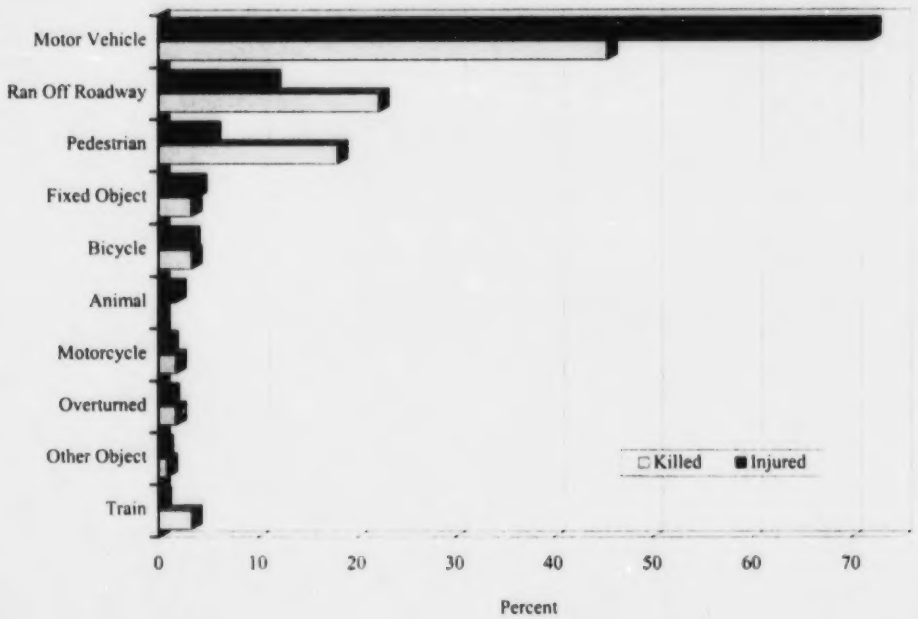


By Collision and Injury Types
1998

Collision Type	Injury Type		Total	%
	Killed	Injured		
Pedestrian	22	494	516	5.3
Motor Vehicle	55	6871	6926	71.8
Train	4	22	26	0.3
Motorcycle	2	84	86	0.9
Bicycle	4	296	300	3.1
Animal	0	164	164	1.7
Fixed Object	4	364	368	3.8
Other Object	1	37	38	0.4
Overturned	2	98	100	1.0
Ran Off Roadway	27	1077	1104	11.4
Other Non-Collision	0	24	24	0.3
Total	121	9531	9652	100.0

"Motor vehicle to motor vehicle" collisions accounted for 71.8% (6926) of the total collision victims, 45.5% (55) of fatally injured victims, and 72.1% (6871) of injured victims. "Ran off roadway" collisions made up 11.4% (1104) of the total collision victims. "Pedestrian" collisions accounted for 5.3% (516) of the total collision victims.

Distribution of Total Collision Victims
by Collision and Injury Types
1998

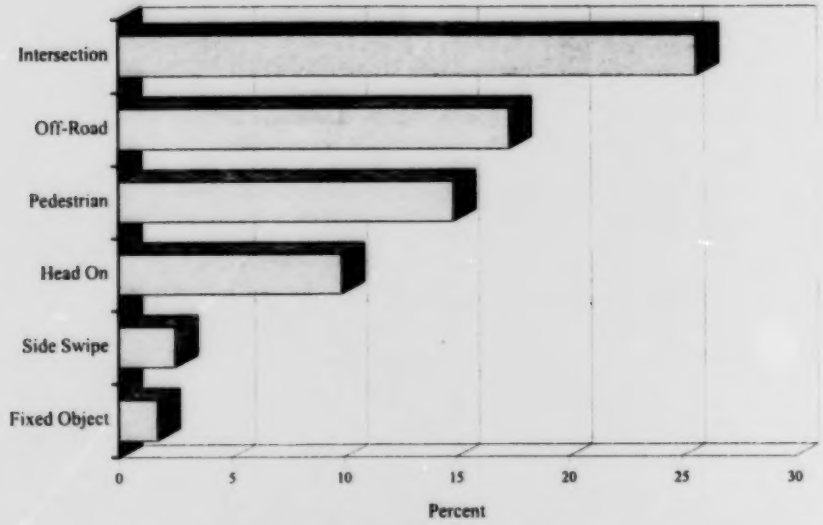


By Accident Configuration and Injury Type
1998

Configuration	Injury Type		Total	%
	Killed	Injured		
Rear End	1	3156	3157	32.7
Head On	12	182	194	2.0
Side Swipe	2	112	114	1.2
Side Swipe	1	166	167	1.7
Overtaking	1	117	118	1.2
Right Turn	0	52	52	0.5
Right Turn	1	32	33	0.3
Left Turn	0	134	134	1.4
Left Turn	0	40	40	0.4
Left Turn	1	553	554	5.7
Intersection 90°	31	1878	1909	19.8
Off-Road Right	12	555	567	5.9
Off-Road Left	9	461	470	4.9
Fixed Object	2	210	212	2.2
Parking	0	34	34	0.4
Pedestrian	18	404	422	4.4
Other [1]	30	1445	1475	15.3
Total	121	9531	9652	100.0

1. Accidents with more than two vehicles involved or more than one configuration noted.

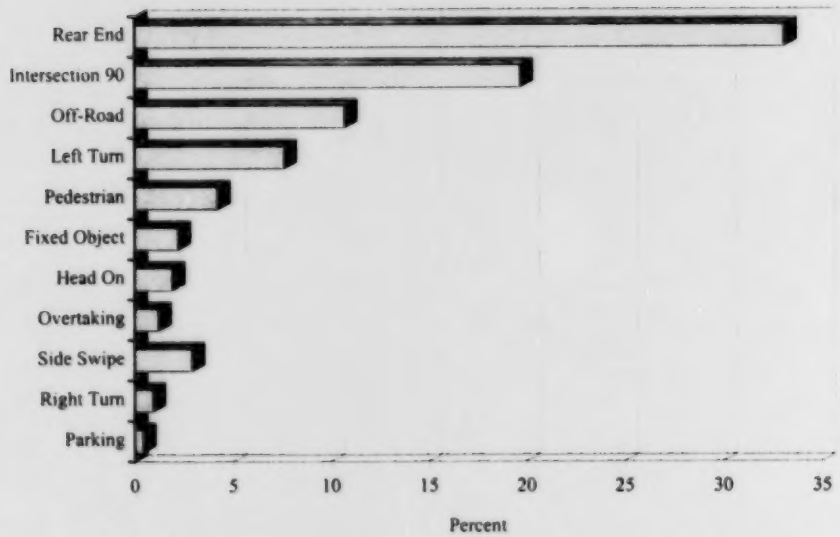
Distribution of Collision Victims Killed by Accident Configuration* 1998



* Other category not graphically presented as the configuration usually refers to accidents involving more than two vehicles or more than one configuration.

Most fatalities occurred in "intersection 90°", "off-road, left and right", and "pedestrian" accident configurations. "Off-road, right or left" configuration involves a single vehicle entering the right-hand ditch or a vehicle crossing the road and entering the left-hand ditch. Injury severity may be higher in these "off-road" collisions because of the vehicle rolling over after entering the ditch.

Distribution of Collision Victims Injured by Accident Configuration* 1998



* Other category not graphically presented as the configuration usually refers to accidents involving more than two vehicles or more than one configuration.

Injuries occurred most often in "rear-end" (33.1%) and "intersection 90°" (19.7%) accident configurations and least often in "parking" configurations.

By Vehicle Defect and Injury Type
1998

Vehicle Defect	Injury Type		Total	%
	Killed	Injured		
No Apparent Defect	119	9422	9541	98.8
Defective Brakes	1	27	28	0.3
Defective Steering	0	6	6	0.1
Defective Headlights	1	7	8	0.1
Defective Brake Lights	0	2	2	-.-
Defective Lighting (Unspecified)	0	5	5	0.1
Defective Engine Control/Drive Train	0	11	11	0.1
Defective Suspension/Wheels	0	5	5	0.1
Defective Tires	0	28	28	0.3
Defective Tow Hitch/Yoke	0	0	0	0.0
Defective Exhaust System	0	1	1	-.-
Hood/Tailgate/Door/Covering Opened	0	0	0	0.0
Defective Glazing (Obscured Windows)	0	2	2	-.-
Vehicle Modifications	0	1	1	-.-
Fire	0	1	1	-.-
Overloaded/Oversized	0	3	3	-.-
Load Shifted/Spilled	0	3	3	-.-
Jack-Knife/Trailer Swing	0	4	4	0.1
Hydroplaning of Tires	0	3	3	-.-
Total	121	9531	9652	100.0

Two victims were fatally injured in vehicles that had an apparent defect at the time of collision occurrence.

The reader is cautioned the "vehicle defect" statistics are obtained from traffic accident reports completed by the person reporting the collision and as such they may be unaware of a vehicle defect prior to collision occurrence.

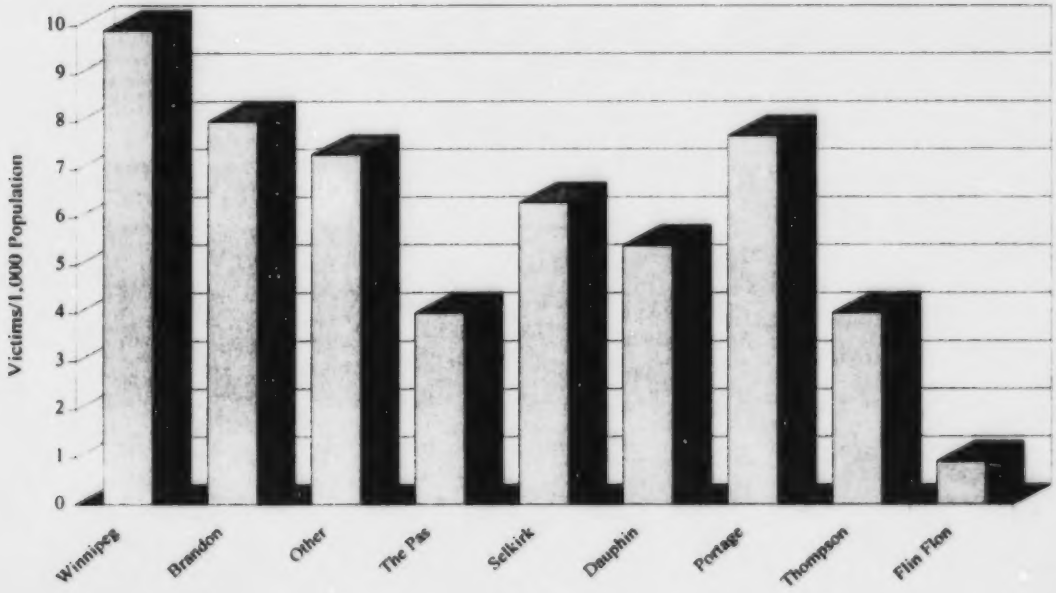
By Provincial Location and Injury Type
1998

Location	Injury Type		Total	%	Victims /1,000 Population[1]
	Killed	Injured			
Winnipeg	22	6120	6142	63.6	9.9
Brandon	0	312	312	3.2	8.0
Portage la Prairie	0	101	101	1.1	7.7
Flin Flon	0	6	6	0.1	0.9
Dauphin	0	45	45	0.5	5.4
Thompson	1	56	57	0.6	4.0
The Pas	0	24	24	0.2	4.0
Selkirk	0	62	62	0.6	6.3
Other Urban	5	458	463	4.8	
Rural	93	2347	2440	25.3	7.3
Total	121	9531	9652	100.0	8.7

1. Based on 1996 rounded-up census statistics from Statistics Canada.

Traffic accidents within the City of Winnipeg accounted for 63.6% (6142) of the total collision victims. Outside of Winnipeg, 11.1% (1070) of the total collision victims occurred within other communities and 25.3% (2440) occurred in rural areas. Rural areas accounted for 76.9% (93) of all fatally injured collision victims. One reason for a higher number of rural fatalities than urban fatalities (over a 3 to 1 ratio) is that collisions on rural roadways occur at much higher speeds (90 to 100km/h) than those in urban areas (50 to 60 km/h). Higher roadway speeds increase the likelihood of fatal injuries.

Distribution of Total Collision Victims
by Provincial Location /1,000 Population
1998



By Safety Equipment and Ejection
Fatal Vehicle Occupant Victims[1]
1998

Safety Equipment	Victims	%	Ejected	Partially Ejected
Lap Belt Installed – In Use	3	3.3	1	
Lap Belt Installed – Not In Use	3	3.3	2	
Shoulder Belt Installed – In Use	1	1.1		
Shoulder Belt Installed – Not In Use	6	6.6	1	5
Lap/Shoulder Belt Assembly – In Use	33	36.3	2	1
Combined Belt Assembly Installed – Not in Use	29	31.8	16	1
Only Lap Part of Assembly – In Use				
Safety Seat Properly Installed – In Use				
Air Bar Deployed/Safety Belt In Use				
Air Bar Deployed/Safety Belt Not In Use				
No Safety Device Available [2]				
Unknown	16	17.6	3	1
Total	91	100.0	25	8

1. Fatal vehicle occupant victim category excludes pedestrians, motorcyclists and bicyclists.
2. Victim was riding in the box portion of a pick-up truck.

Of the total fatal vehicle occupant victims, 38 or 41.7% were known not to be wearing a safety device at time of collision occurrence.

A total of 27.5% (25) of fatal injured victims were ejected from the vehicle and 8.8% (8) were partially ejected.

Section 6

Pedestrian Victims

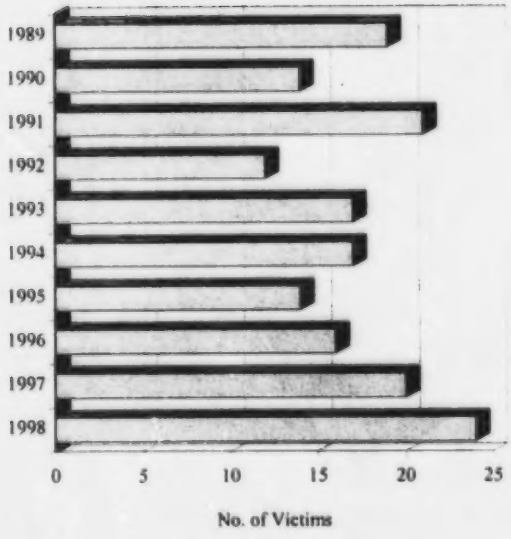
Ten Year Summary
1989 – 1998

Year	Injury Type		Total
	Killed	Injured	
1989	19	659	678
1990	14	650	664
1991	21	631	652
1992	12	771	783
1993	17	711	728
1994	17	634	651
1995	14	650	664
1996	16	535	551
1997	20	481	501
1998	24	496	520

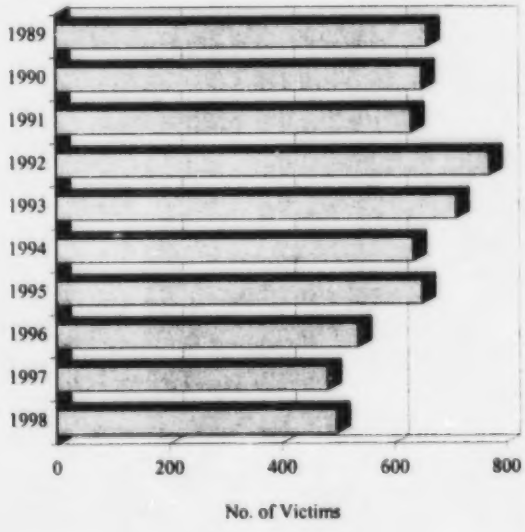
The number of pedestrians killed in traffic collisions rose by 20% between 1997 and 1998, from 20 to 24 while the number injured rose by 3.1%, from 481 in 1997 to 496 in 1998.

Comparison of Pedestrian Victims
1989 – 1998

Killed



Injured

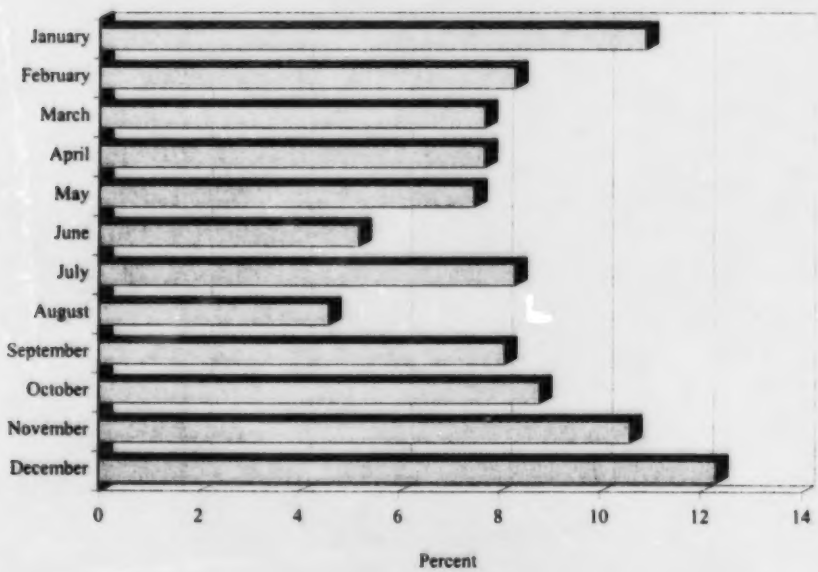


By Month of Occurrence and Injury Type
1998

Month	Injury Type		Total	%
	Killed	Injured		
January	2	55	57	10.9
February	0	43	43	8.3
March	1	39	40	7.7
April	2	38	40	7.7
May	1	38	39	7.5
June	1	26	27	5.2
July	3	40	43	8.3
August	2	22	24	4.6
September	3	39	42	8.1
October	3	43	46	8.8
November	3	52	55	10.6
December	3	61	64	12.3
Total	24	496	520	100.0

Three pedestrian fatalities were recorded in each of the months of July, September, October, November, and December and two each in January, April, and August. The months with the highest number of total pedestrian victims were December with 64, January with 57, November with 55 and October with 46.

Distribution of Total Pedestrian Victims
by Month of Occurrence
1998

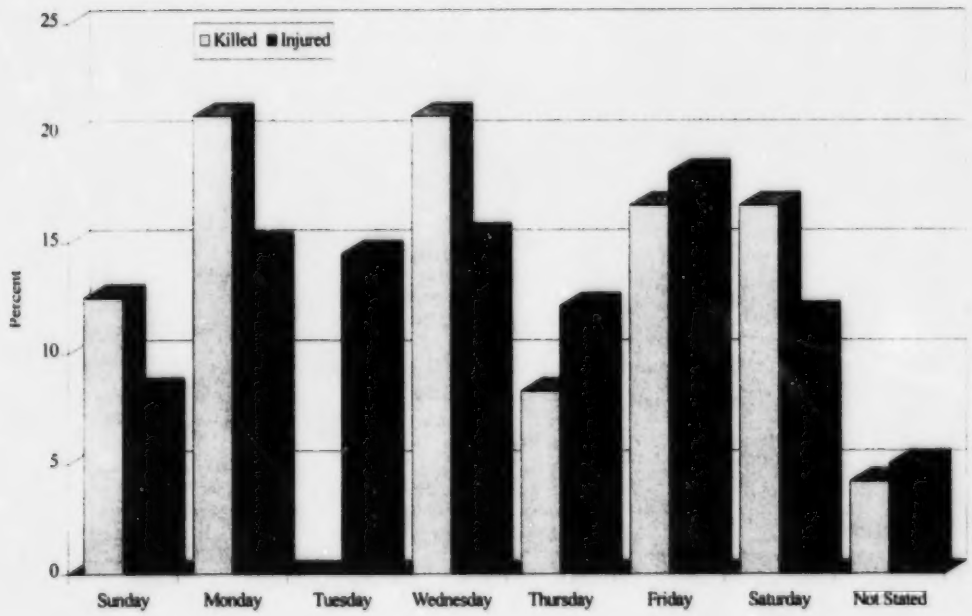


By Day of Occurrence and Injury Type
1998

Day	Injury Type		Total	%
	Killed	Injured		
Sunday	3	41	44	8.5
Monday	5	74	79	15.2
Tuesday	0	72	72	13.8
Wednesday	5	76	81	15.6
Thursday	2	60	62	11.9
Friday	4	90	94	18.1
Saturday	4	58	62	11.9
Not Stated	1	25	26	5.0
Total	24	496	520	100.0

Pedestrian fatalities peaked on Mondays and Wednesdays, each accounting for 20.8%. The lowest percentage was recorded on Thursday, at 8.3%. Pedestrian injuries happened most often on Fridays and Wednesdays (18.1% and 15.3% respectively) and least often on Sundays, at 8.3%.

Comparison of Pedestrian Victims
by Day of Occurrence and Injury Type
1998

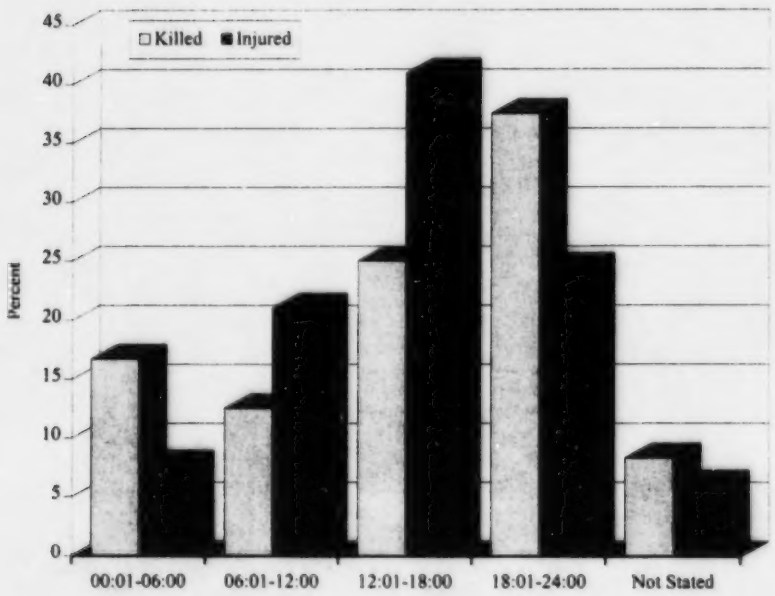


By Time of Occurrence and Injury Type
1998

Time	Injury Type		Total	%
	Killed	Injured		
00:01 - 06:00	4	38	42	8.1
06:01 - 12:00	3	104	107	20.6
12:01 - 18:00	6	203	209	40.2
18:01- 24:00	9	121	130	25.0
Not Stated	2	30	32	6.1
Total	24	496	520	100.0

The time period 12:01-18:00 hours accounted for 40.2% (209) of the total number of pedestrian collision victims.
The time period 18:01-24:00 hours had the most number of pedestrian victims killed, 9 or 37.5 percent.

Comparison of Pedestrian Victims
by Time of Occurrence and Injury Type
1998

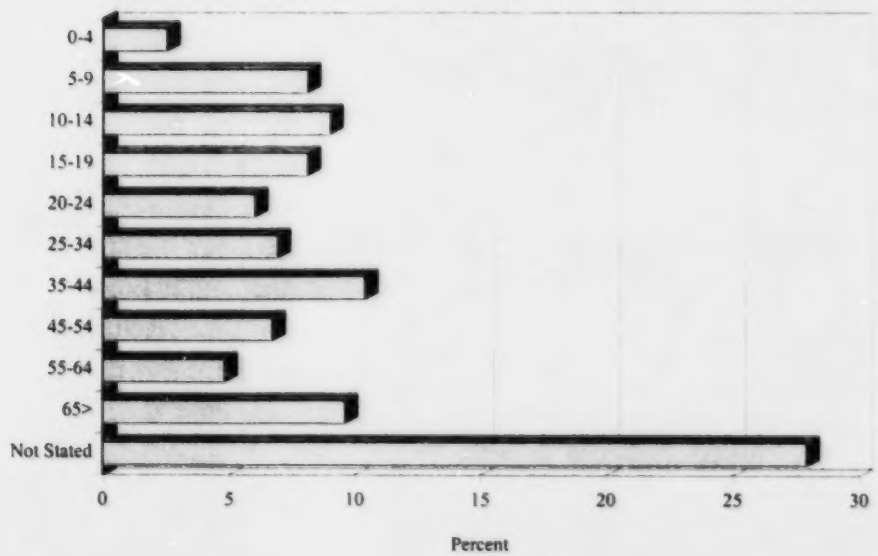


By Age Group and Injury Type
1998

Age Group	Injury Type		Total	%
	Killed	Injured		
0-4	1	12	13	2.5
5-9	1	41	42	8.1
10-14	1	46	47	9.0
15-19	2	40	42	8.1
20-24	3	28	31	6.0
25-34	0	36	36	6.9
35-44	4	50	54	10.4
45-54	1	34	35	6.7
55-64	1	24	25	4.8
65>	10	40	50	9.6
Not Stated	0	145	145	27.9
Total	24	496	520	100.0

Of the total number of fatally injured pedestrians, 41.7% (10) were over the age of 65. By contrast, only 26.4% of the *total fatally injured collision victims* fall into the over 65 age group. Children (0-14) comprised 12.5% of total pedestrians fatally injured, compared to 7.4% of all *fatally injured collision victims*. As well, this group made up 20.0% of pedestrians injured, compared to 6.4% of *all injured* collision victims.

Distribution of Total Pedestrian Victims
by Age Group
1998



By Pedestrian Action and Injury Type
1998

Pedestrian Action	Injury Type		Total	%
	Killed	Injured		
At Intersection, crossing with right-of-way	1	87	88	16.9
At Intersection, crossing without right-of-way	2	36	38	7.3
At Intersection, crossing, no traffic control	2	13	15	2.9
Between Intersections, crossing roadway	4	56	60	11.5
Walking along roadway with traffic	0	2	2	0.4
Walking along roadway against traffic	0	9	9	1.7
On Sidewalk/Median/Safety Zone	0	13	13	2.5
Walking on roadway (travelled portion)	2	10	12	2.3
From behind Vehicle/Object on roadside	2	13	15	2.9
Running into roadway	1	48	49	9.4
Pushing/Working on vehicle	0	4	4	0.8
Getting on/off another vehicle	0	5	5	1.0
Playing on roadway	1	5	6	1.1
Working on roadway	0	2	2	0.4
Lying on roadway	2	3	5	1.0
Unknown	7	189	196	37.7
Other	0	1	1	0.2
Total	24	496	520	100.0

Pedestrian action at intersections accounted for 20.8% (5) of the total number of fatally injured pedestrians. Of the five intersection fatalities, one victim was "crossing with the right of way", two were "crossing without the right of way" and two victims were "crossing an intersection with no traffic control". Non-intersection pedestrian action accounted for 50.0% (12) of the total number of pedestrians fatally injured.

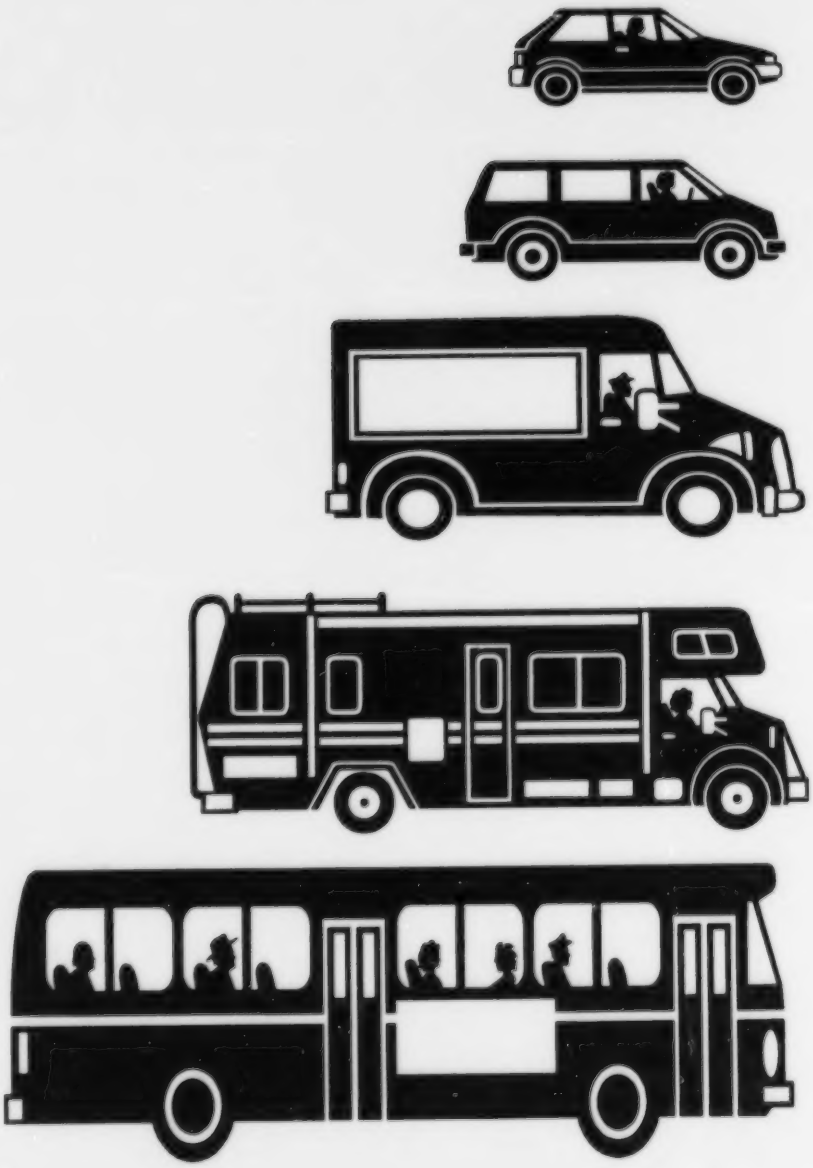
By Pedestrian Action and Age Group
1998

Pedestrian Action	Age Group											Total
	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65>	NS	
At Intersection, crossing with right-of-way	0	6	5	7	10	6	10	11	4	14	15	88
At Intersection, crossing without right-of-way	0	4	3	4	2	1	1	5	1	4	13	38
At Intersection, crossing with no traffic control	0	1	2	2	0	0	4	0	0	2	4	15
Between Intersections, crossing roadway	1	2	7	5	1	5	10	3	3	9	14	60
Walking along roadway with traffic	0	0	1	0	0	0	0	0	0	1	0	2
Walking along roadway against traffic	0	0	1	2	0	2	1	1	0	0	2	9
On Sidewalk/Median/Safety Zone	0	2	0	1	2	2	3	0	1	0	2	13
Walking on Roadway (travelled portion)	0	0	1	2	0	1	1	1	1	1	4	12
From behind Vehicle/ Object on roadway	1	3	1	0	0	3	1	1	0	0	5	15
Running into Roadway	4	14	6	4	1	1	5	0	1	0	13	49
Getting On/Off Another Vehicle	0	0	0	1	0	1	1	0	0	0	2	5
Pushing/Working on Vehicle	0	0	1	0	1	2	0	0	0	0	0	4
Playing on Roadway	2	1	0	1	1	0	0	0	0	0	1	6
Working on Roadway	0	0	0	0	0	0	0	0	0	0	2	2
Lying on Roadway	0	0	0	2	1	0	1	0	0	1	0	5
Unknown	5	8	19	11	12	12	16	13	14	18	68	196
Other	0	1	0	0	0	0	0	0	0	0	0	1
Total	13	42	47	42	31	36	54	35	25	50	145	520
%	2.5	8.1	9.0	8.1	6.0	6.9	10.4	6.7	4.8	9.6	27.9	100.0

Among all pedestrian casualties aged 15 and older, the two most frequently reported pedestrian actions prior to being struck by a motor vehicle were "crossing at intersections with right-of-way" and "crossing roadway between intersections". "Crossing, with right-of-way", "crossing roadway between intersections", and "crossing at intersection without right-of-way" were cited most often for pedestrians 65 years of age and older.

Younger pedestrians had actions *considerably different* from those reported for the older pedestrians. Among pedestrians four years of age and younger, the most frequently cited pedestrian actions were "running into roadway", and "playing on roadway". Of the total 5-9 and 10-14 year old pedestrians, "running into the roadway", "crossing at intersections with right-of-way", and "crossing roadway between intersections" were the most frequently reported actions.

Section 7



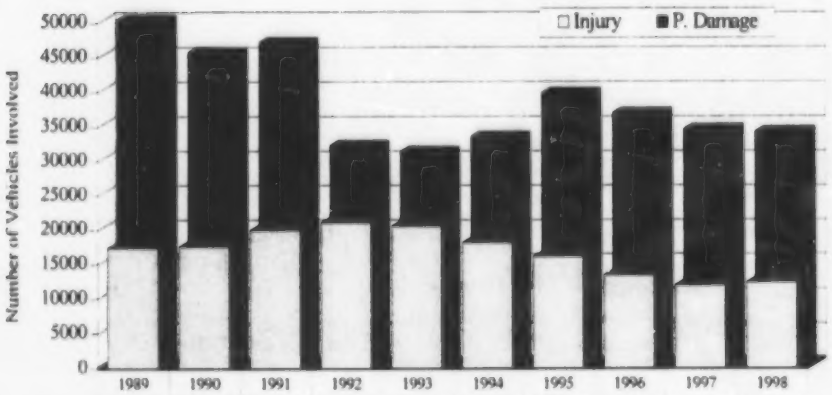
Vehicle Involvement

Ten Year Summary
1989 – 1998

Year	Collision Type			Total
	Fatal	Injury	P. Damage	
1989	198	17356	49634	67188
1990	162	17571	45004	62737
1991	153	19992	46420	66565
1992	164	21081	31496	52741
1993	161	20573	30628	51362
1994	161	18140	32798	51099
1995	188	16120	39084	55392
1996	115	13428	36169	49712
1997	147	11955	33857	45959
1998	170	12371	33464	46005

Between 1997 and 1998 the number of vehicles involved in fatal traffic collisions rose by 15.6%, from 147 to 170. The number of vehicles involved in injury collisions increased by 3.5% from 11,955 in 1997 to 12,371 in 1998. Vehicles involved in property damage collisions decreased by 1.2% from 33,857 in 1997 to 33,464 in 1998.

Ten Year Summary
Vehicle Involvement by Injury and Property Damage Collision Type
1989 – 1998*



*Fatal statistics not shown due to low values.

By Vehicle Type and Collision Type
1998

Vehicle Type	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Automobile	84	8563	22548	31195	67.8
Mini/Multi-Purpose Van	14	995	2932	3941	8.6
Van under 4500 kg	1	276	855	1132	2.5
Pick-up under 4500 kg	44	1560	5358	6962	15.1
Truck over 4500 kg (unit chassis)	10	159	477	646	1.4
Power Unit for Semi-Trailer	5	123	390	518	1.1
Truck/Camper	0	6	22	28	0.1
Motorhome	0	3	26	29	0.1
Truck (other)	3	178	521	702	1.5
School Bus	1	5	40	46	0.1
Other School Vehicle	0	0	1	1	-.-
Transit Bus – urban	0	31	27	58	0.1
Para-transit Bus	0	2	6	8	-.-
Intercity Bus	0	22	37	59	0.1
Bus (other)	0	6	15	21	-.-
Motorcycle/Scooter	3	83	35	121	0.3
Moped	0	0	0	0	0.0
Bicycle	4	308	14	326	0.7
Ambulance	0	7	18	25	0.1
Fire	0	2	10	12	-.-
Police	0	12	36	48	0.1
Mobility Vehicle	0	1	1	2	-.-
Snow Vehicle	0	1	2	3	-.-
Farm Equipment	1	11	19	31	0.1
Construction Equipment	0	8	59	67	0.2
Train/Other Rail Vehicle	0	3	2	5	-.-
Off-Road Vehicle	0	6	13	19	-.-
Total	170	12371	33464	46005	100.0

Passenger cars, vans and pick-up trucks were involved in 84.1% of the total number of fatal collisions, 92.1% of the injury collisions and 94.7% of the property damage collisions. Passenger cars were involved in considerably more injury collisions (69.2%) than fatal crashes (49.4%). Conversely, a higher percentage of light trucks/vans were involved in fatal collisions (26.5%) than in injury collisions, at 14.8%. Heavy trucks/tractor trailers were involved in fatal crashes three and a half times more often than in injury collisions (8.8% versus 2.3%).

By Hazardous Load Type and Collision Type
1998

Hazardous Load	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Explosives	0	2	22	24	0.1
Flammable Gas	2	11	17	30	0.1
Flammable/Combustible Liquids	0	6	13	19	-.-
Flammable Solids/Dangerous When Wet	1	0	1	2	-.-
Oxidizers/Organic Peroxides	0	2	2	4	-.-
Poisonous Substances/Infectious	0	2	3	5	-.-
Radioactives	0	1	0	1	-.-
Corrosives	0	0	1	1	-.-
Miscellaneous Dangerous Substances	0	3	9	12	-.-
General Cargo (non-hazardous)	4	121	296	421	0.9
Empty	3	44	145	192	0.4
Not Applicable	159	12149	32865	45173	98.2
Other	0	0	4	4	-.-
Unknown	1	30	86	117	0.3
Total	170	12371	33464	46005	100.0

Of the total number of vehicles involved in traffic accidents, 98 were carrying "hazardous goods". Three of the 98 vehicles were involved in fatal collisions, 27 resulted in injury collisions, and 68 resulted in property damage collisions.

Section 8

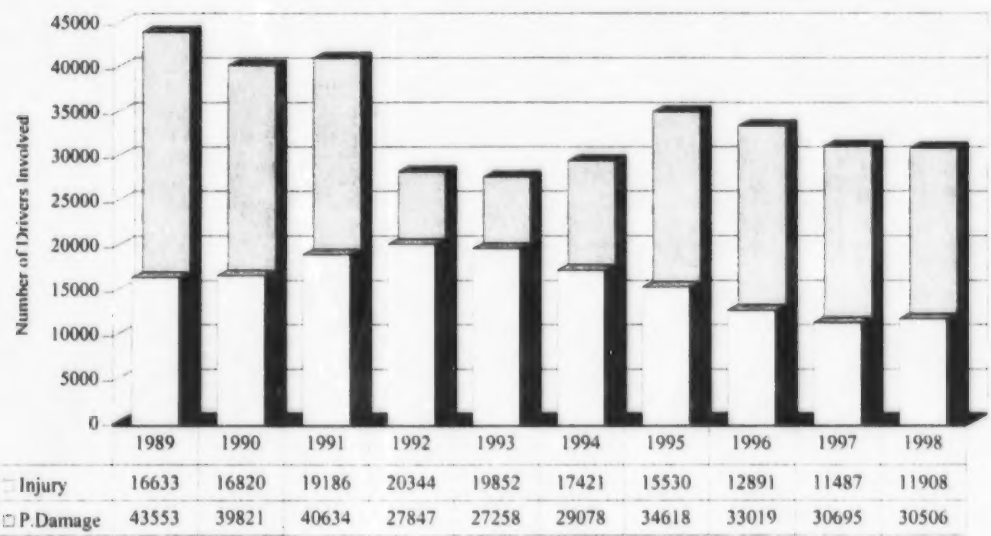
Driver Involvement

Ten Year Summary
1989 – 1998

Year	Collision Type			Total
	Fatal	Injury	P. Damage	
1989	192	16633	43553	60378
1990	153	16820	39821	56794
1991	145	19186	40634	59965
1992	152	20344	27847	48343
1993	150	19852	27258	47260
1994	152	17421	29078	46651
1995	171	15530	34618	50319
1996	110	12891	33019	46020
1997	142	11487	30695	42324
1998	164	11908	30506	42578

There were 164 drivers involved in fatal traffic accidents in 1998, an increase of 15.5% from the 142 drivers involved in 1997. The number of drivers involved in injury collisions increased by 3.7% from 11,487 in 1997 to 11,908 in 1998. Drivers involved in property damage collisions decreased by 0.6% from 30,695 in 1997 to 30,506 in 1998.

Ten Year Summary of Driver Involvement in Traffic Collisions
by Injury and Property Damage Collision Type
1989 – 1998*



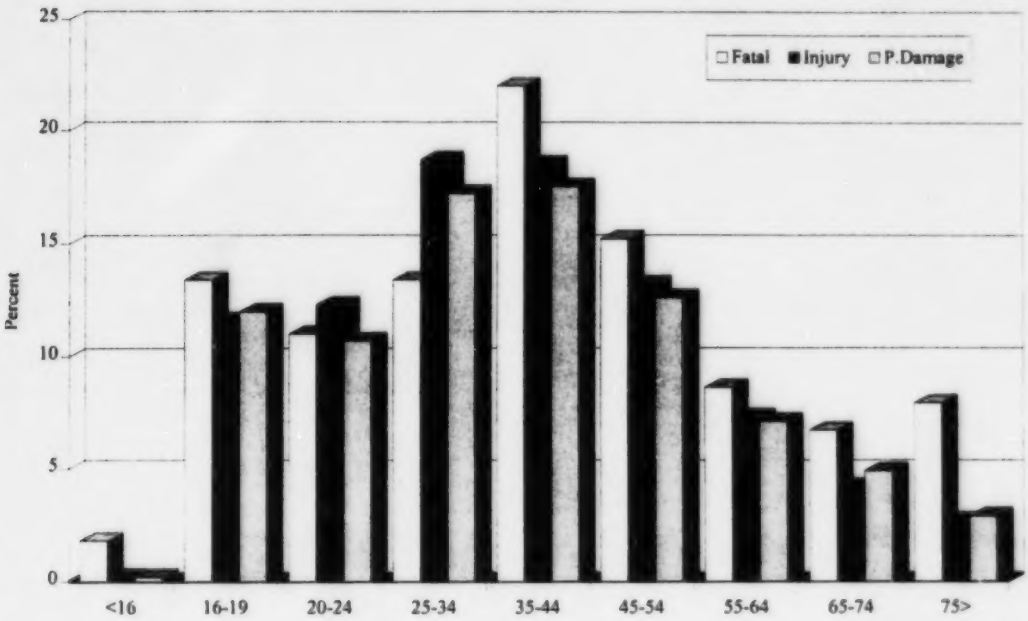
* Fatal statistics not shown due to low values.

By Age Group, Sex and Collision Type
1998

Age Group	Sex	Collision Type						Total	%
		Fatal	%	Injury	%	P. Damage	%		
<16	M	2		9		39		50	
	F	1		11		30		42	
	NS	0		0		2		2	
	Total	3	1.8	20	0.2	71	0.2	94	0.2
16-19	M	20		795		2338		3153	
	F	2		532		1180		1714	
	NS	0		55		134		189	
	Total	22	13.4	1382	11.6	3652	12.0	5056	11.9
20-24	M	11		829		2076		2916	
	F	7		577		1023		1607	
	NS	0		60		170		230	
	Total	18	11.0	1466	12.3	3269	10.7	4753	11.2
25-34	M	16		1289		3268		4573	
	F	6		852		1738		2596	
	NS	0		90		243		333	
	Total	22	13.4	2231	18.7	5249	17.2	7502	17.6
35-44	M	25		1239		3229		4493	
	F	11		906		1890		2807	
	NS	0		61		233		294	
	Total	36	22.0	2206	18.5	5352	17.5	7594	17.8
45-54	M	20		895		2410		3325	
	F	5		635		1285		1925	
	NS	0		47		143		190	
	Total	25	15.2	1577	13.2	3838	12.6	5440	12.8
55-64	M	10		520		1471		2001	
	F	4		324		631		959	
	NS	0		19		67		86	
	Total	14	8.6	863	7.3	2169	7.1	3046	7.2
65-74	M	9		341		999		1349	
	F	2		150		454		606	
	NS	0		7		28		35	
	Total	11	6.7	498	4.2	1481	4.9	1990	4.7
75>	M	11		225		585		821	
	F	2		95		261		358	
	NS	0		4		27		31	
	Total	13	7.9	324	2.7	873	2.9	1210	2.8
Not Stated	M	0		477		1506		1983	
	F	0		213		711		924	
	NS	0		651		2335		2986	
	Total	0	0	1341	11.3	4552	14.9	5893	13.8
All Ages	M	124		6619		17921		24664	
	F	40		4295		9203		13538	
	NS	0		994		3382		4376	
	Total	164	100.0	11908	100.0	30506	100.0	42578	100.0

Male drivers were involved in collisions more often than their female counterparts – approximately 3 times more frequently in fatal collisions, approximately 1½ more times in injury collisions and approximately 2 times more frequently in property damage collisions.

Comparison of Driver Involvement in Traffic Collisions
by Age Group* and Collision Type
1998



* Not stated category not included.

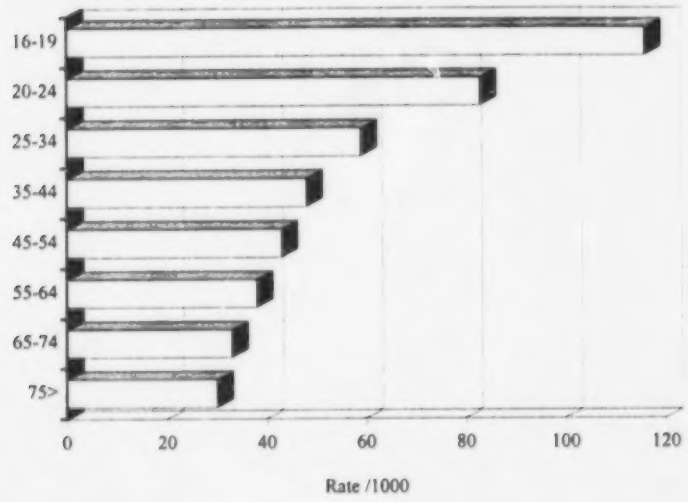
Overall, the age group 35-44 accounted for 17.8% (7594) of the total number of drivers involved in traffic collisions, followed closely by the 25-34 age group which accounted for 17.6% (7502). The 35-44 age group had the highest involvement in fatal collisions at 22.0% (36), and property damage collisions at 17.5% (5352). However, the 25-34 age had the highest involvement in injury collisions at 18.7% (2231), followed closely by the 35-44 age group at 18.5% (2206).

By Age Group, Sex and Relative Involvement /1,000 Drivers
1998

Age Group	Sex	Total Drivers Involved in Collisions	%	Total Drivers	%	Relative Involvement Rate /1,000
<16	M	50		0		
	F	42		0		
	NS	2		0		
	Total	94	0.2	0	0.0	
16-19	M	3153		23057		137
	F	1714		20464		84
	NS	189		0		
	Total	5056	11.9	43521	6.3	116
20-24	M	2916		30270		96
	F	1607		26963		60
	NS	230		0		
	Total	4753	11.2	57233	8.3	83
25-34	M	4573		66567		69
	F	2596		60328		43
	NS	333		0		
	Total	7502	17.6	126895	18.3	59
35-44	M	4493		83061		54
	F	2807		75297		37
	NS	294		0		
	Total	7594	17.8	158358	22.8	48
45-54	M	3325		67228		49
	F	1925		60281		32
	NS	190		0		
	Total	5440	12.8	127509	18.4	43
55-64	M	2001		43037		46
	F	959		36466		26
	NS	86		0		
	Total	3046	7.2	79503	11.5	38
65-74	M	1349		33429		40
	F	606		26712		23
	NS	35		0		
	Total	1990	4.7	60141	8.7	33
75>	M	821		23643		35
	F	358		16138		22
	NS	31		0		
	Total	1210	2.8	39781	5.7	30
Not Stated	M	1983		0		
	F	924		0		
	NS	2986		0		
	Total	5893	13.8	0	0.0	
All Ages	M	24664		370292		67
	F	13538		322649		42
	NS	4376		0		
	Total	42578	100.0	692941	100.0	61

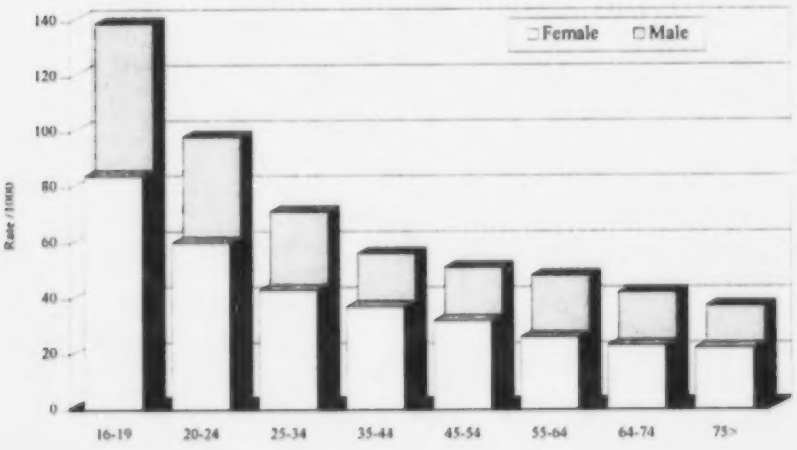
Certain age groups have higher involvement rates than other age groups. For example, drivers in the age group 16-19 made up 6.3% of the total licenced drivers, but accounted for 11.9% of the total drivers involved in traffic collisions. In contrast, drivers over 55 years of age made up 25.9% of the total licenced drivers, but comprised only 14.7% of the total drivers involved in traffic accidents. Drivers between the ages of 20 and 54 made up 67.8% of the total licenced drivers, but accounted for 59.4% of the drivers involved in traffic accidents.

Distribution of Driver Involvement in Traffic Collisions
by Age Group and Relative Involvement /1,000 Drivers
1998



The 16-19 age group had the highest relative involvement rate at 116/1,000 followed by the 20-24 age group with a rate of 83/1,000. The lowest relative involvement rate belongs to the 75> group, 30/1,000 drivers. The overall relative involvement rate for all age groups in 1998 was 61/1,000. *These relative involvement rates do not take into consideration the number of vehicle kilometres travelled by each age group.*

Comparison of Relative Involvement Rates /1,000 Drivers
by Age Group and Sex
1998



The above graph illustrates male drivers have higher relative involvement rates than their female counterparts. For example, males in the 16-19 age group have the highest relative involvement rate, 137 /1,000, whereas females in the same age group have a relative involvement rate of only 84/1,000. Drivers in the 75> age group have the lowest relative involvement rates, male rate of 35/1,000 compared to the female rate of 22/1,000.

Section 9

Environmental

Driver Action

Human Condition

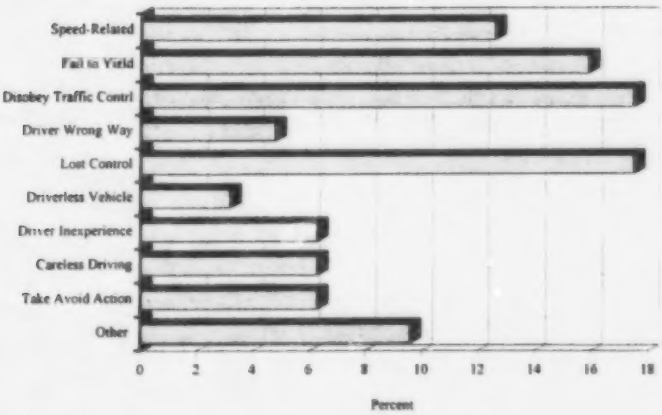
Contributing Factors

Driver Involvement in Traffic Collisions
by Driver Action and Collision Type
1998

Driver Action	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Driving Properly[1]	100	9515	25272	34887	81.9
Follow Too Closely	0	361	597	958	2.3
Turn Improperly	1	181	456	638	1.5
Exceed Speed Limit	4	69	61	134	0.3
Drive Too Fast For Conditions	4	278	714	996	2.3
Unsafe Speed (too fast or too slow)	0	34	74	108	0.3
Passing Improperly	1	23	67	91	0.2
Change Lanes Improperly	1	50	265	316	0.7
Fail to Yield	10	435	744	1189	2.8
Disobeyed Traffic Control	11	250	334	595	1.4
Drive Wrong Way	3	14	21	38	0.1
Pass Vehicle at Pedestrian X-Walk	0	7	0	7	-.-
Backing Up Unsafely	0	40	596	636	1.5
Park Improperly	0	7	45	52	0.1
Careless Driving	4	109	198	311	0.7
Lost Control/Off Roadway	11	228	385	624	1.5
Driverless Vehicle	2	2	17	21	0.1
Leave Stop Sign	3	107	169	279	0.7
Fail To Signal	0	3	15	18	-.-
Take Avoiding Action	4	73	184	261	0.6
Driver Inexperience	4	114	286	404	1.0
Pedestrian Error/Confusion	1	8	6	15	-.-
Total	164	11908	30506	42578	100.0

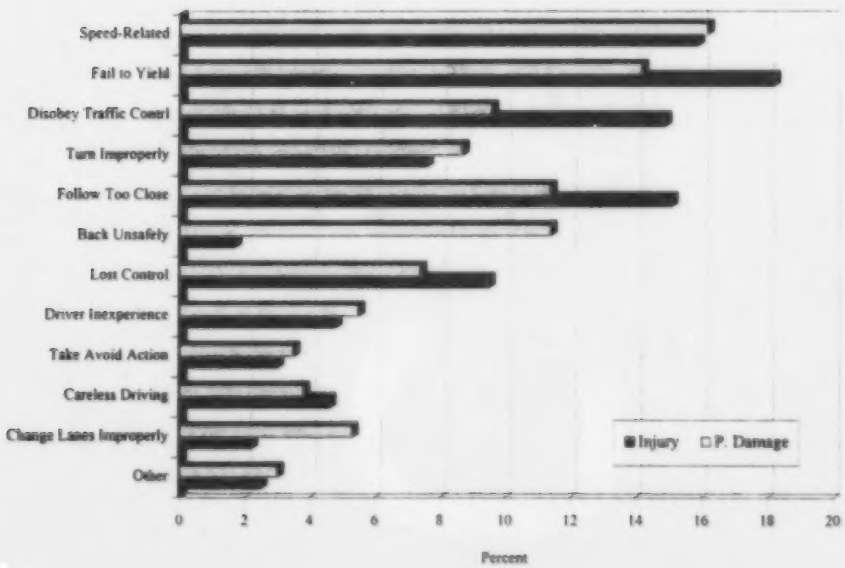
1. No apparent improper driving action noted on traffic accident report.

Comparison of Selected[1] At-Fault Driver Actions in Fatal Traffic Collisions 1998



Although disobeying a traffic control device accounted for only 7.7% (595) of total at-fault collisions, it made up 17.5% (11) of at-fault driver actions resulting in fatalities. Similarly, losing control (drive off roadway) made up 8.1% (624) of total at-fault driver actions but accounted for 17.5% (11) of the at-fault driver actions involved in fatal collisions.

Comparison of Selected[1] At-Fault Driver Actions in Injury and Property Damage Traffic Collisions 1998



1. Speed-related includes exceeding speed limit, drive too fast for conditions and unsafe operating speed. Disobey Traffic Control includes leave stop sign before safe to do so. Changing Lanes Improperly includes Fail to signal. Other includes pass improperly, drive wrong way on roadway, pass vehicle at pedestrian x-walk, park improperly, driverless vehicle and pedestrian error.

The three main at-fault driver actions resulting in injuries were failure to yield (18.2% or 435), speed-related (15.9% or 381), and following too closely (15.1% or 361).

Driver Involvement in Fatal Traffic Collisions by Driver Action and Age Group 1998

Driver Action	Age Group										Total
	<16	16-19	20-24	25-34	35-44	45-54	55-64	65-74	75>	NS	
Drive Properly	0	9	11	16	24	18	11	7	4	0	100
Follow Too Closely	0	0	0	0	0	0	0	0	0	0	0
Turn Improperly	0	0	0	0	0	0	0	0	1	0	1
Exceed Speed Limit	0	1	1	1	1	0	0	0	0	0	4
Drive Too Fast	0	1	0	0	1	1	0	0	1	0	4
Unsafe Speed	0	0	0	0	0	0	0	0	0	0	0
Passing Improperly	0	0	0	0	1	0	0	0	0	0	1
Change Lanes Improperly	0	0	0	0	1	0	0	0	0	0	1
Fail to Yield	0	2	1	3	0	1	0	1	2	0	10
Disobey Traffic Control	0	2	1	0	0	0	2	1	5	0	11
Drive Wrong Way	0	2	0	0	0	1	0	0	0	0	3
Pass at Pedestrian Corridor	0	0	0	0	0	0	0	0	0	0	0
Backing Up Unsafely	0	0	0	0	0	0	0	0	0	0	0
Park Improperly	0	0	0	0	0	0	0	0	0	0	0
Careless Driving	0	3	1	0	0	0	0	0	0	0	4
Lost Control/off Roadway	0	1	3	1	4	2	0	0	0	0	11
Driverless Vehicle	0	0	0	0	1	1	0	0	0	0	2
Leave Stop Sign	0	0	0	0	1	0	0	2	0	0	3
Fail to Signal	0	0	0	0	0	0	0	0	0	0	0
Take Avoiding Action	0	0	0	1	1	1	1	0	0	0	4
Driver Inexperience	3	1	0	0	0	0	0	0	0	0	4
Pedestrian Error/Confusion	0	0	0	0	1	0	0	0	0	0	1
Total	3	22	18	22	36	25	14	11	13	0	164
%	1.8	13.4	11.0	13.4	22.0	15.3	8.5	6.7	7.9	0.0	100.0

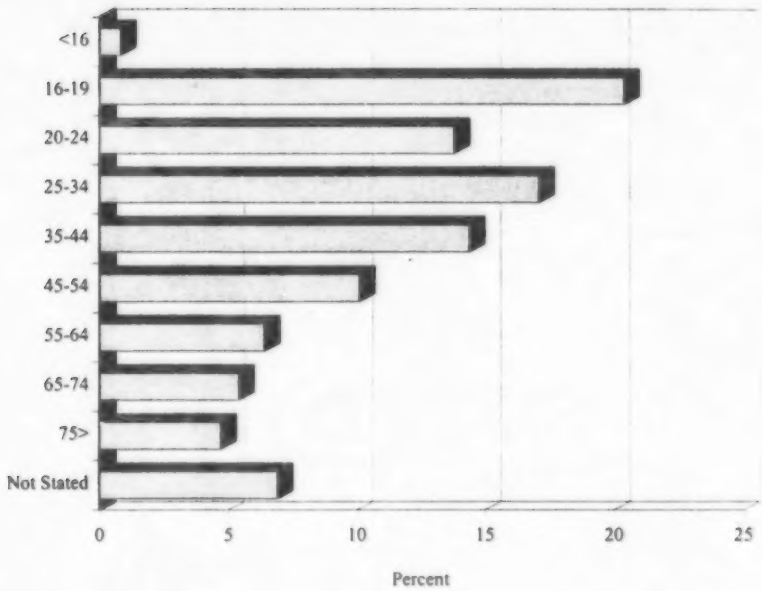
The age groups 16-19 and 35-44 recorded the highest reported driver infractions. Each age group displayed different at-fault fatal involvement. "Careless driving" (23.1%), "fail to yield" (15.4%), "disobey traffic control" (15.4%) and "drive wrong way on roadway" (15.4%) were the primary at-fault driver actions in the 16-19 year age group. "Lost control/drive off roadway" (33.3%) was the most commonly reported driving infraction in the 35-44 age group.

Driver Involvement in Injury and Property Damage Traffic Collisions by Driver Action and Age Group 1998

Driver Action	Age Group										Total
	<16	16-19	20-24	25-34	35-44	45-54	55-64	65-74	75>	NS	
Drive Properly	36	3480	3679	6171	6460	4647	2545	1567	842	5360	34787
Follow Too Closely	1	168	143	180	160	87	57	33	24	105	958
Turn Improperly	3	79	73	105	101	62	55	56	52	51	637
Exceed Speed Limit	1	51	31	18	8	7	4	3	1	6	130
Drive Too Fast	3	258	185	175	134	87	41	29	14	66	992
Unsafe Speed	2	35	22	17	13	5	3	3	6	2	108
Passing Improperly	0	14	16	12	12	11	8	5	8	4	90
Change Lanes Improperly	1	48	33	42	53	44	25	23	10	36	315
Fail to Yield	1	164	109	199	175	138	101	91	104	97	1179
Disobey Traffic Control	4	75	74	95	68	85	51	47	38	47	584
Drive Wrong Way	0	4	4	9	9	1	5	1	0	2	35
Pass at Pedestrian Corridor	0	2	1	0	0	2	0	1	1	0	7
Backing Up Unsafely	4	90	87	121	100	83	46	37	25	43	636
Park Improperly	0	7	5	11	4	8	7	1	6	3	52
Careless Driving	3	63	44	55	42	24	13	13	11	39	307
Lost Control/off Roadway	5	140	109	136	99	39	33	22	15	15	613
Driverless Vehicle	0	2	1	5	2	4	2	1	1	1	19
Leave Stop Sign	0	40	17	44	41	43	22	31	31	7	276
Fail to Signal	0	2	1	3	7	1	2	0	1	1	18
Take Avoiding Action	1	52	53	47	46	31	7	11	6	3	257
Driver Inexperience	26	253	47	33	22	5	5	3	1	5	400
Pedestrian Error/Confusion	0	7	1	2	2	1	0	1	0	0	14
Total	91	5034	4735	7480	7558	5415	3032	1979	1197	5893	42414
%	0.2	11.9	11.2	17.6	17.8	12.8	7.1	4.7	2.8	13.9	100.0

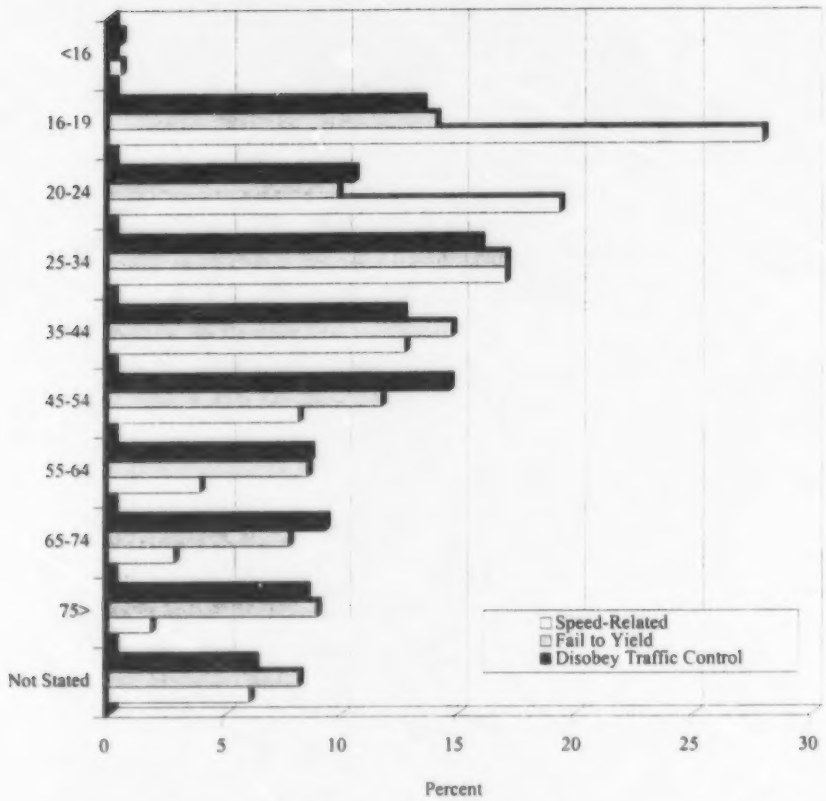
The age groups 16-19 and 25-34 recorded the highest reported driving infractions in injury and property damage collisions. "Driving too fast for conditions" (16.6%), "driver inexperience" (16.3%) and "follow too closely" (10.8%) were the primary actions in the 16-19 year age group. "Failing to yield" (15.2%), "follow too closely" (13.8%) and "drive too fast for conditions" (13.4%) were the primary actions in the 25-34 year age group.

Distribution of Total At-Fault Driver Actions
by Age Group
1998



The age groups 16-19 and 25-34 have the highest incidence of at-fault driver accident involvement, 1567 (20.3%) and 1315 (17.1%) respectively. The age group 35-44 had the third highest number with 1110 (14.4%). The age group 20-24 was in fourth place, with 1063 (13.8%).

Comparison of Selected[1] At-Fault Driver Actions by Age Group 1998



1. Speed-related includes exceeding speed limit, drive too fast for conditions and unsafe operating speed. Disobey traffic control device includes leave stop sign before safe to do so.

Drivers in the 16-19, 20-24, and 25-34 age groups recorded the highest percentage of *speed related* driving infractions. Drivers, 45-54 years of age accounted for the second highest percentage of drivers who *disobeyed traffic controls*, with the 25-34 age group in first place. The age groups with the highest percentage of drivers who *failed to yield* right-of-way were 25-34, 35-44, and 16-19 respectively.

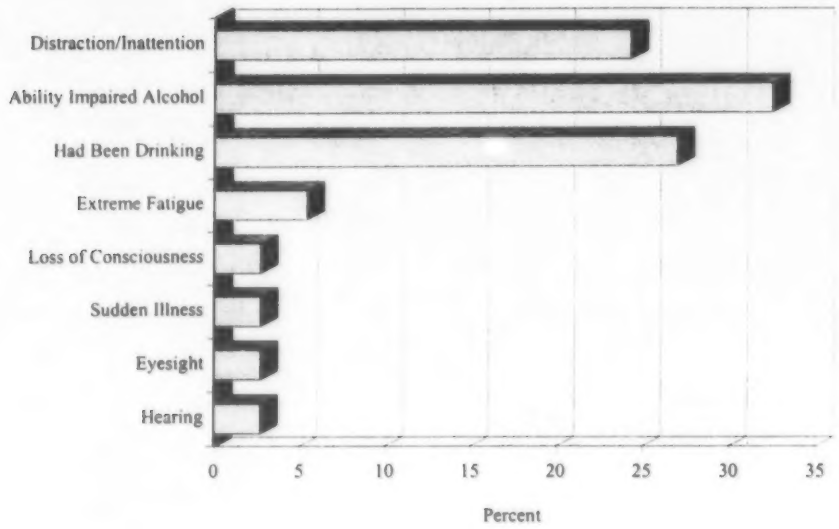
Driver Involvement in Traffic Collisions by Human Condition and Collision Type 1998

Human Condition	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Apparently Normal	127	11154	29331	40612	95.4
Loss of Consciousness	1	23	18	42	0.1
Extreme Fatigue/Fell Asleep	2	69	57	128	0.3
Defective Eyesight	1	4	12	17	-.-
Defective Hearing	1	2	5	8	-.-
Medical Disability	0	6	6	12	-.-
Physical Disability	0	5	16	21	0.1
Mental Disability	0	2	3	5	-.-
Mental Confusion/Unable to Remember	0	26	15	41	0.1
Sudden Illness	1	4	7	12	-.-
Ability Impaired by Alcohol	12	161	206	379	0.9
Ability Impaired by Drugs	0	1	5	6	-.-
Had Been Drinking/Suspected Alcohol Use[1]	10	79	115	204	0.5
Distraction/Inattention	9	372	708	1089	2.6
Exceed Hours of Service	0	0	2	2	-.-
Total	164	11908	30506	42578	100.0

1. These statistics are understated and represent only those collisions where alcohol involvement was apparent.

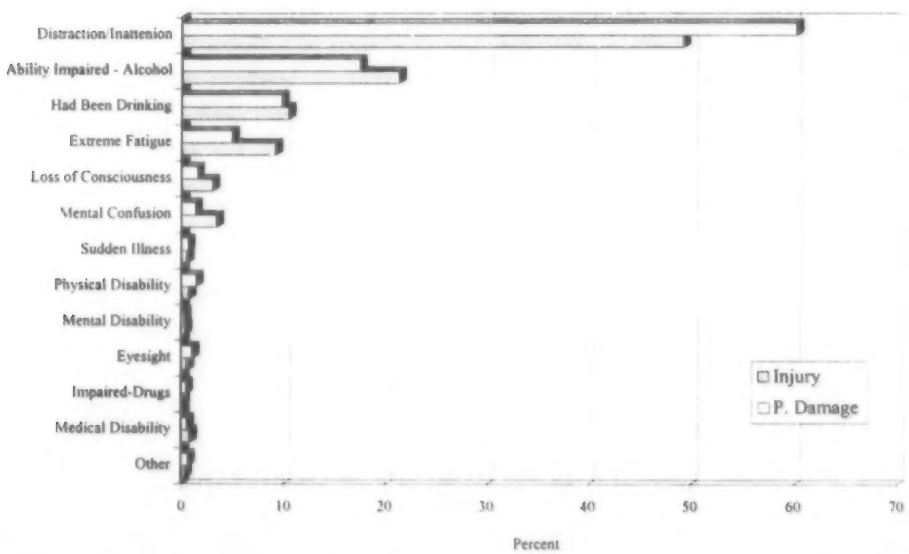
The primary contributing at-fault factors reported on the traffic accident reports were "distraction/inattention", "ability impaired by alcohol", and "had been drinking/suspected alcohol use".

Comparison of At-Fault Human Condition Factors in Fatal Traffic Collisions, 1998



Among the at-fault drivers involved in fatal collisions 59.5% were cited for having consumed alcohol. Of these at-fault drivers, 32.5% had their driving ability "impaired by alcohol", while 27.0% "had been drinking/suspected alcohol use". After alcohol consumption, the most often reported driver condition among those involved in fatal crashes was "distraction/inattention" (24.3%).

Comparison of At-Fault Human Condition Factors in Injury and Property Damage Traffic Collisions, 1998



For injury and property damage collisions, the most frequently reported driver condition was "distraction and inattention" (49.3% and 60.3% respectively). Less than twenty-two percent (21.4% and 17.5% respectively) of drivers involved in injury and property damage collisions had their driving ability "impaired by alcohol", while fewer than eleven percent (10.5% and 9.8% respectively) had "been drinking" prior to collision occurrence.

Driver Involvement in Fatal Traffic Collisions by Human Condition and Age Group 1998

Human Condition	Age Group										Total
	<16	16-19	20-24	25-34	35-44	45-54	55-64	65-74	75>	NS	
Apparently Normal	1	16	12	16	31	22	12	10	7	0	127
Loss of Consciousness	0	0	0	1	0	0	0	0	0	0	1
Extreme Fatigue/Sleep	0	0	0	0	0	0	0	1	1	0	2
Defective Eyesight	0	0	0	0	0	0	0	0	1	0	1
Defective Hearing	0	0	0	0	0	0	0	0	1	0	1
Medical Disability	0	0	0	0	0	0	0	0	0	0	0
Physical Disability	0	0	0	0	0	0	0	0	0	0	0
Mental Disability	0	0	0	0	0	0	0	0	0	0	0
Mental Confusion	0	0	0	0	0	0	0	0	0	0	0
Sudden Illness	0	0	0	0	0	0	0	0	1	0	1
Ability Impaired Alcohol	2	1	2	2	2	3	0	0	0	0	12
Ability Impaired Drugs	0	0	0	0	0	0	0	0	0	0	0
Had Been Suspected Alcohol Use[1]	0	3	3	1	3	0	0	0	0	0	10
Distraction/Inattention	0	2	1	2	0	0	2	0	2	0	9
Exceed Hours of Service	0	0	0	0	0	0	0	0	0	0	0
Total	3	22	18	22	36	25	14	11	13	0	164
%	1.8	13.4	11.0	13.4	22.0	15.2	8.6	6.7	7.9	0.0	100.0

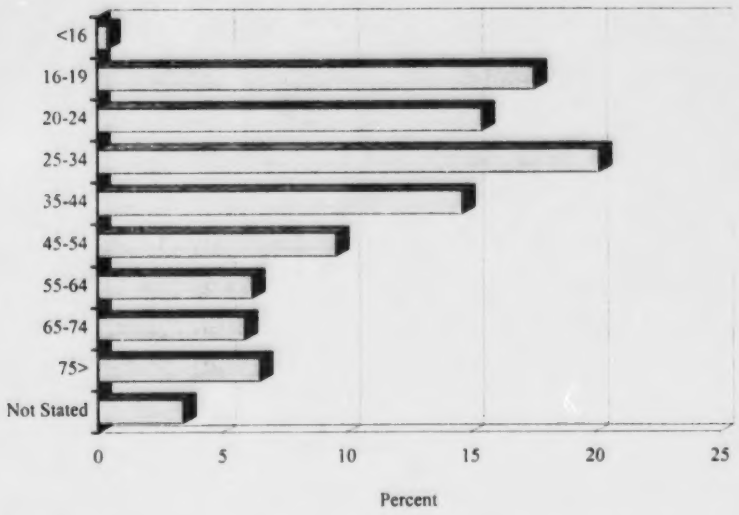
1. These statistics are understated and represent only those collisions where alcohol involvement was apparent.

Driver Involvement in Injury and Property Damage Traffic Collisions by Human Condition and Age Group 1998

Human Condition	Age Group										Total
	<16	16-19	20-24	25-34	35-44	45-54	55-64	65-74	75>	NS	
Apparently Normal	86	4694	4437	7088	7273	5229	2913	1864	1075	5826	40485
Loss of Consciousness	0	2	6	10	6	4	7	2	4	0	41
Extreme Fatigue/Sleep	0	41	29	23	11	7	9	5	1	0	126
Defective Eyesight	0	2	2	0	0	1	2	1	8	0	16
Defective Hearing	0	1	1	2	0	0	1	0	1	1	7
Medical Disability	0	0	0	3	2	1	1	2	3	0	12
Physical Disability	0	2	0	3	1	4	2	0	9	0	21
Mental Disability	0	0	0	0	2	0	1	2	0	0	5
Mental Confusion	0	0	1	6	3	4	4	7	14	2	41
Sudden Illness	0	0	1	4	1	0	1	2	1	1	11
Ability Impaired Alcohol	2	48	64	100	82	35	17	7	3	9	367
Ability Impaired Drugs	0	0	3	2	0	0	0	1	0	0	6
Had Been Suspected Alcohol Use[1]	1	50	39	40	30	9	6	4	0	15	194
Distraction/Inattention	2	194	152	198	147	121	67	82	78	39	1080
Exceed Hours of Service	0	0	0	1	0	0	1	0	0	0	2
Total	91	5034	4735	7480	7558	5415	3032	1979	1197	5893	42414
%	0.2	11.9	11.2	17.6	17.8	12.8	7.1	4.7	2.8	13.9	100.0

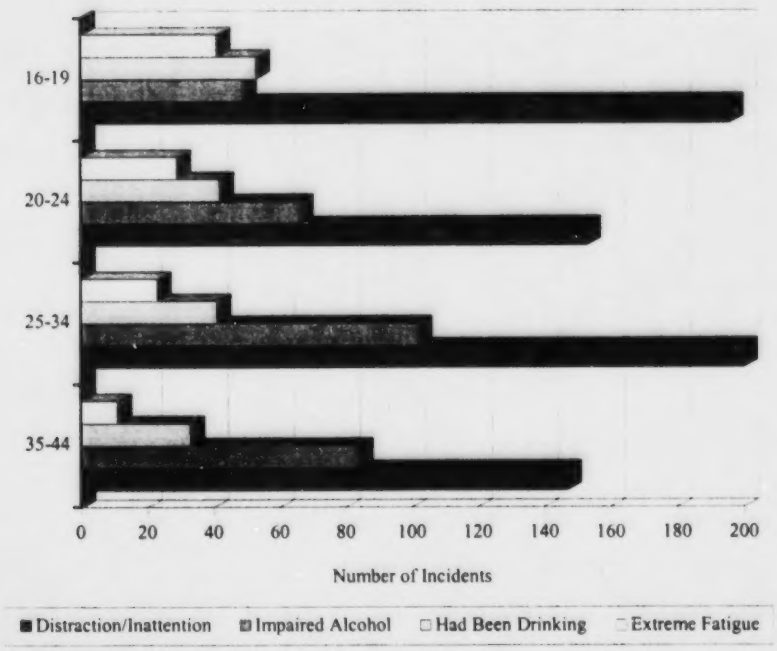
1. These statistics are understated and represent only those collisions where alcohol involvement was apparent.

Distribution of Total At-Fault Human Condition Factors
by Age Group
1998



Drivers in the age groups 25-34 and 16-19 respectively accounted for 20.2% (398) and 17.6% (346) of the total at-fault human condition factors.

Comparison of Top Four At-Fault Human Condition Factors
by Selected Age Groups
1998



"Distraction/inattention" is the number one at-fault factor across all age groups. The second most prevalent human condition factor is "impaired alcohol".

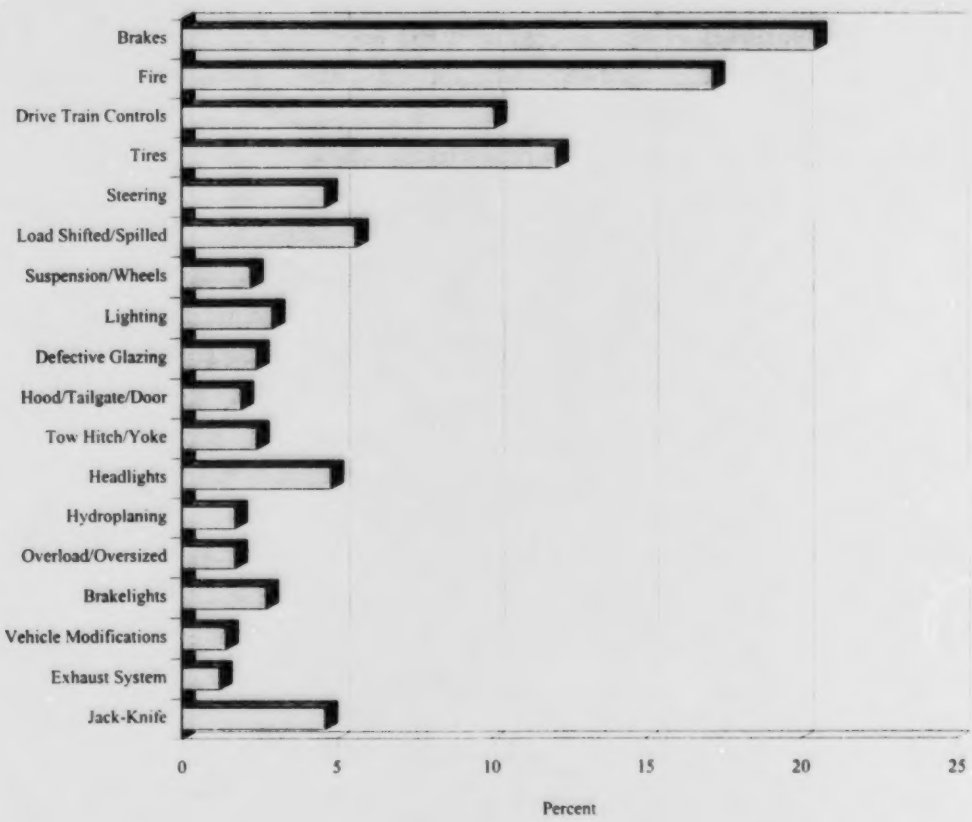
Vehicle Involvement in Traffic Collisions by Vehicle Defect and Collision Type 1998

Vehicle Defect[1]	Collision Type			Total	%
	Fatal	Injury	P. Damage		
No Apparent Defect	168	12264	33159	45591	99.1
Defective Brakes	1	29	55	85	0.2
Defective Steering	0	5	14	19	0.1
Defective Headlights	1	6	13	20	0.1
Defective Brake Lights	0	3	8	11	-.-
Defective Lighting (Unspecific)	0	6	6	12	-.-
Defective Engine Controls/Drive Train	0	9	33	42	0.1
Defective Suspension/Wheels	0	4	5	9	-.-
Defective Tires	0	20	30	50	0.1
Defective Tow Hitch/Yoke	0	2	8	10	-.-
Defective Exhaust System	0	2	3	5	-.-
Hood/Tailgate/Door/Covering Opened	0	0	8	8	-.-
Defective Glazing (obscured window)	0	4	6	10	-.-
Vehicle Modifications	0	2	4	6	-.-
Fire	0	1	70	71	0.2
Overloaded/Oversized	0	3	4	7	-.-
Load Shifted/Spilled	0	3	20	23	0.1
Jack-Knife/Trailer Swing	0	4	15	19	-.-
Hydroplaning of Tires	0	4	3	7	-.-
Total	170	12371	33464	46005	100.0

1. The reader is cautioned that the "vehicle defect" statistics are obtained from the traffic accident reports completed by the person reporting the collision and as such they may be unaware of any vehicle defect.

Of the total number of vehicles involved in traffic collisions, 99.1 % had "no apparent defect" at time of collision occurrence. Only 0.9 % or 414 vehicles involved were reported to have had a vehicle defect that contributed to collision causation.

Distribution of At-Fault Vehicle Defect Factors
in Collision Causation
1998



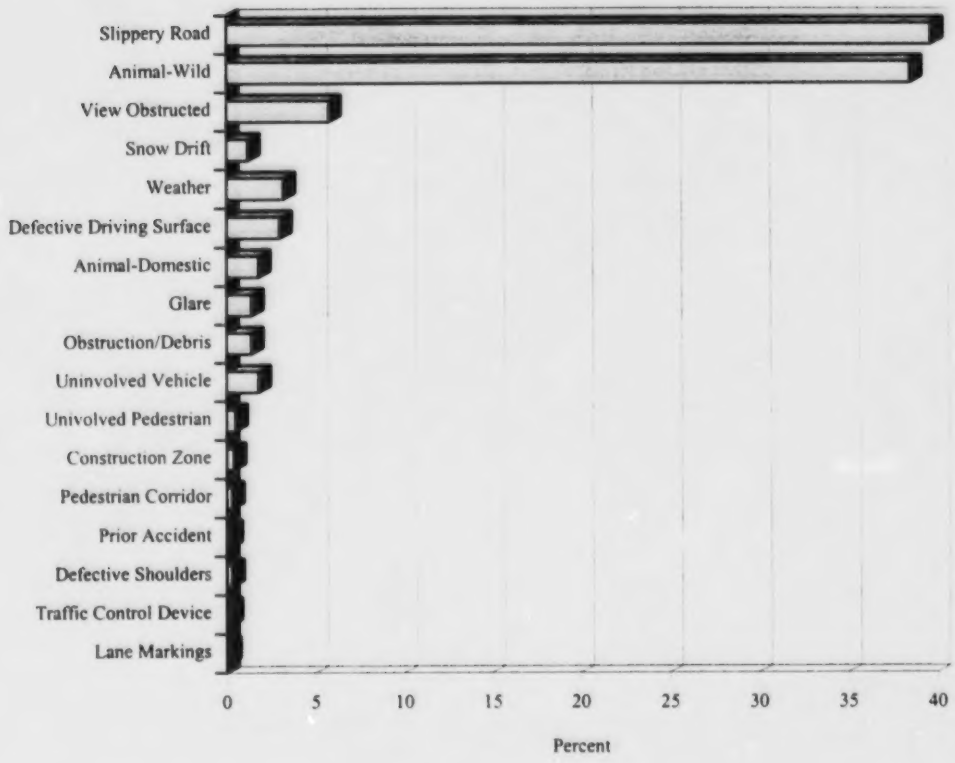
The distribution of at-fault "vehicle defects" are based on 414 vehicles involved in traffic collisions that had a *readily apparent* defect at time of collision occurrence.

Vehicle Involvement in Traffic Collisions by Environmental Condition and Collision Type 1998

Environmental Condition	Collision Type			Total	%
	Fatal	Injury	P. Damage		
No Apparent Contributing Factor	147	11417	28784	40348	87.7
Animal Action – Wild	0	127	2055	2182	4.7
Animal Action – Domestic	0	22	80	102	0.2
Slippery Road Surface	11	492	1749	2252	4.9
Snow Drift	0	19	47	66	0.2
Obstruction/Debris on Roadway	2	14	64	80	0.2
View Obstructed/Limited	4	83	243	330	0.7
Glare	0	30	50	80	0.2
Construction Zone	0	6	19	25	0.1
Defective Driving Surface	0	58	112	170	0.4
Shoulders Defective	1	5	11	17	-.-
Lane Markings Inadequate	0	2	3	5	-.-
Defective/Inoperative Traffic Control Device	1	4	6	11	-.-
Weather	3	44	136	183	0.4
Pedestrian Corridor in Use	0	11	6	17	-.-
Uninvolved Vehicle	1	23	75	99	0.2
Uninvolved Pedestrian	0	10	16	26	0.1
Presence of Prior Accident	0	4	8	12	-.-
Total	170	12371	33464	46005	100.0

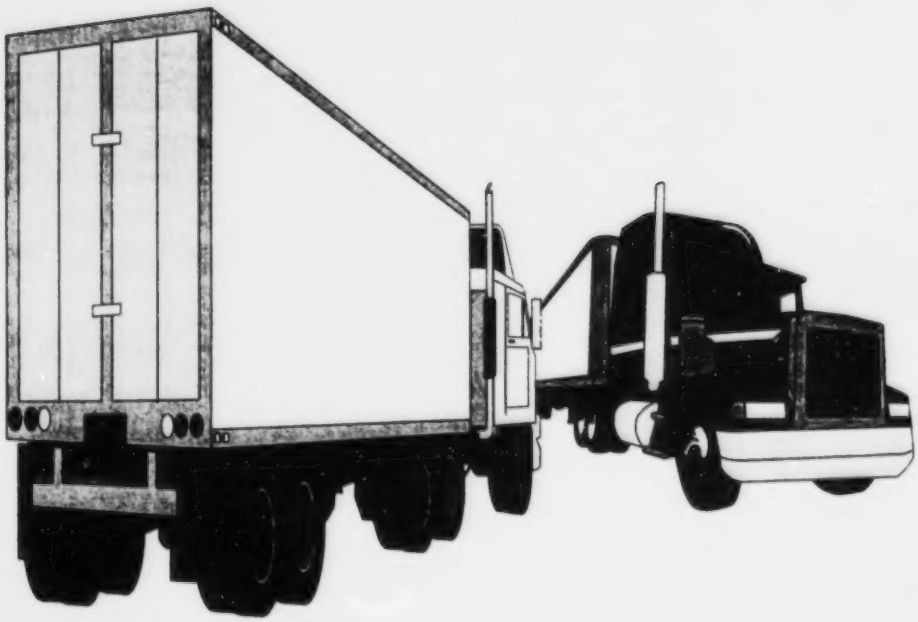
Environmental conditions were cited as contributing factors for 12.3% of total vehicles involved in traffic collisions. The most significant factors in fatal collisions were "slippery road surface" (47.8%), followed by "view obstructed and limited" (17.4%) and "weather" (13.0%). The most significant factors for injury and property damage collisions were "slippery road surface" (39.8%) and "animal action – wild" (38.7%).

Distribution of At-Fault Environmental Factors
in Collision Causation
1998



There were a total of 5,657 environmental conditions reported as being partly at-fault for collision occurrence.

Section 10



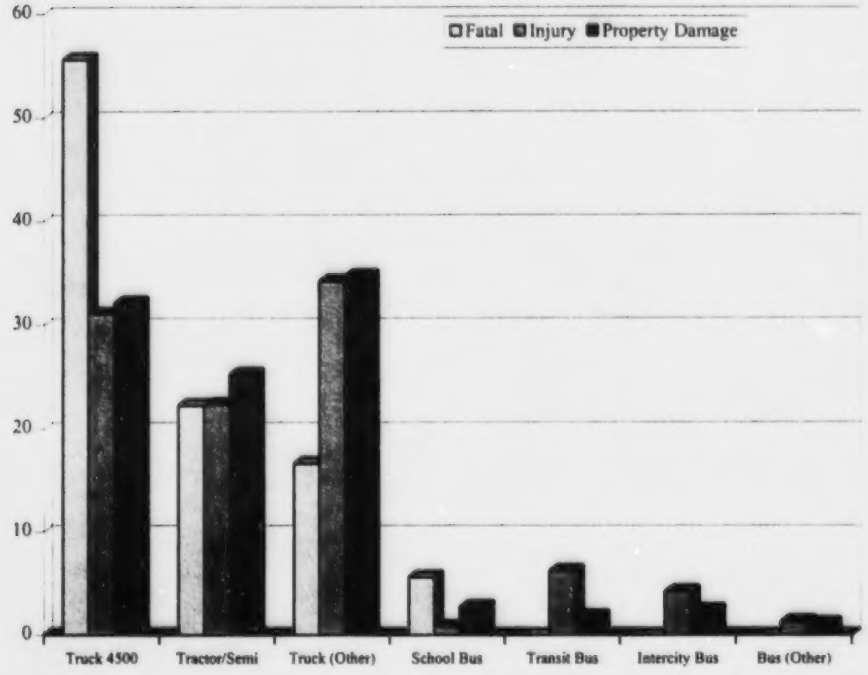
National Safety Code
Monitoring Report

Commercial Vehicle Traffic Collisions[1] by NSC Commercial Vehicle Category and Collision Type 1998

Vehicle Category	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Truck >4500 kg	10	154	457	621	32.0
Tractor/Semi	4	111	359	474	24.4
Truck (Other)	3	170	495	668	34.4
School Bus	1	4	39	44	2.3
Transit Bus	0	31	26	57	2.9
Intercity Bus	0	21	35	56	2.9
Bus (Other)	0	6	15	21	1.1
Total	18	497	1426	1941	100.0

1. Chart presents the number of commercial vehicles involved in traffic accidents by NSC vehicle category.

Comparison of Commercial Vehicle Collisions by NSC Commercial Vehicle Category and Collision Type 1998

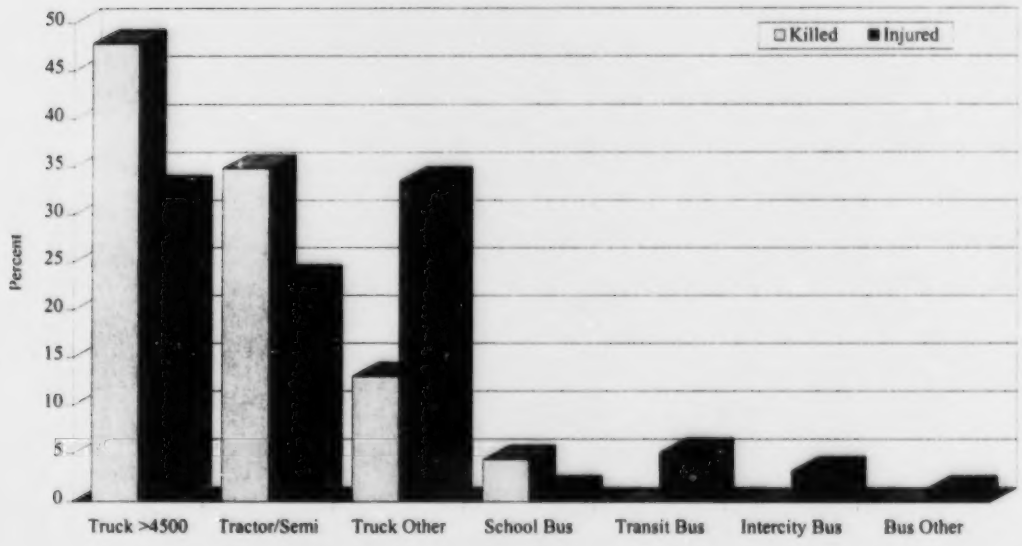


Commercial Vehicle Traffic Collision Victims[1] by NSC Commercial Vehicle Category and Injury Type 1998

Vehicle Category	Injury Type		Total	%
	Killed	Injured		
Truck >4500 kg	11	242	253	33.0
Tractor/Semi	8	172	180	23.5
Truck (Other)	3	249	252	32.9
School Bus	1	9	10	1.3
Transit Bus	0	38	38	5.0
Intercity Bus	0	24	24	3.1
Bus (Other)	0	9	9	1.2
Total	23	743	766	100.0

1. Chart presents the number of people killed or injured when a commercial vehicle was involved in traffic accidents by NSC vehicle category.

Comparison of Commercial Vehicle Traffic Collision Victims by NSC Commercial Vehicle Category and Collision Severity 1998



Commercial Vehicle Involvement in Traffic Collisions
by Pre-Collision Activity and Collision Type
1998

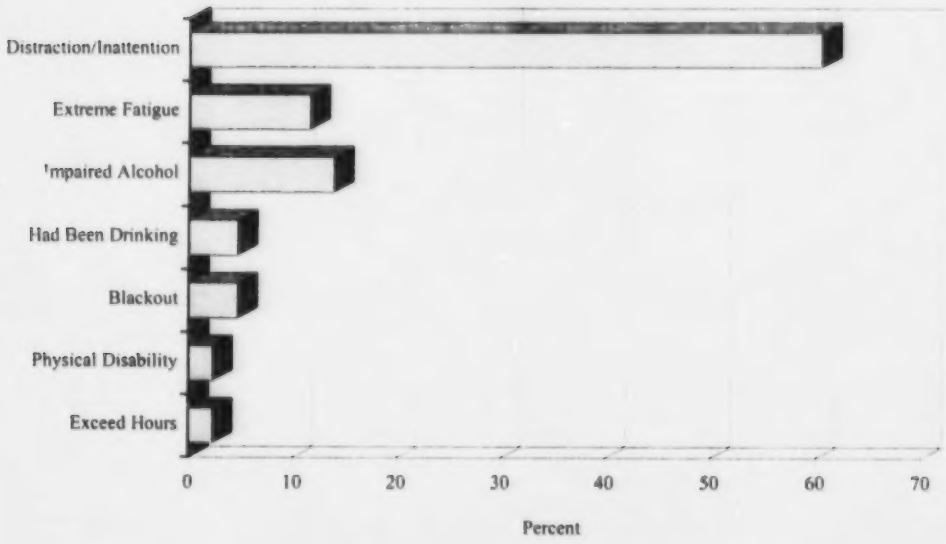
Pre-Collision Activity	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Going Straight Ahead	10	196	413	619	45.9
Turning Left	1	29	84	114	8.5
Turning Right	0	9	95	104	7.7
Making U Turn	0	0	4	4	0.3
Changing Lanes – Left	0	6	13	19	1.4
Changing Lanes – Right	0	1	11	12	0.9
Merging	0	1	4	5	0.4
Reversing	1	2	74	77	5.7
Overtaking	0	5	8	13	1.0
Slowing/Stopping on Roadway	0	16	18	34	2.5
Stopped in Traffic	1	29	44	74	5.5
Starting in Traffic	0	1	1	2	0.1
Leave Parking Position/Roadside	0	2	7	9	0.7
Enter Parking Position/Roadside	0	1	2	3	0.2
Parked Legally	1	7	50	58	4.3
Parked Illegally	0	0	4	4	0.3
Swerving	0	1	4	5	0.4
Unknown	0	1	3	4	0.3
Not Applicable	2	39	147	188	13.9
Total	16	346	986	1348	100.0

Of the total NSC vehicles involved in traffic collisions, 45.9% (619) were moving "straight ahead" when accident involvement occurred, 8.5% (114) were "turning left" and 7.7% (104) were "turning right".

Commercial Driver Involvement in Traffic Collisions
by At-Fault Human Condition and Collision Type
1998

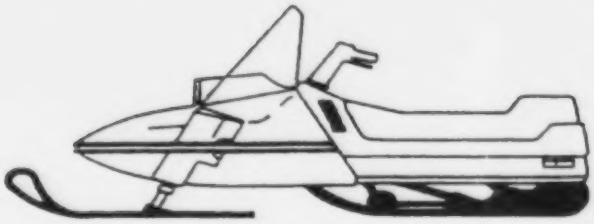
Human Condition	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Apparently Normal	8	182	426	616	45.7
Extreme Fatigue/Fell Asleep	0	2	3	5	0.4
Blackout	0	1	1	2	0.1
Ability Impaired – Alcohol	0	3	3	6	0.5
Had Been Drinking/Suspected Alcohol Use	0	1	1	2	0.1
Distraction/Inattention	1	11	14	26	1.9
Physical Disability	0	0	1	1	0.1
Exceed Hours of Service	0	0	1	1	0.1
Not Stated	7	146	536	689	51.1
Total	16	346	986	1348	100.0

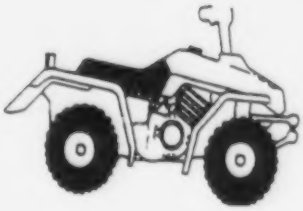
Distribution of At-Fault Human Condition* Factors
in Commercial Vehicle Traffic Collisions
1998

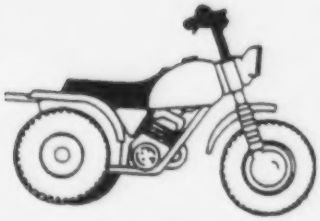


There were 43 at-fault human conditions, 3.2% of the total human condition factors recorded as being partly responsible for collision causation.

Section 11





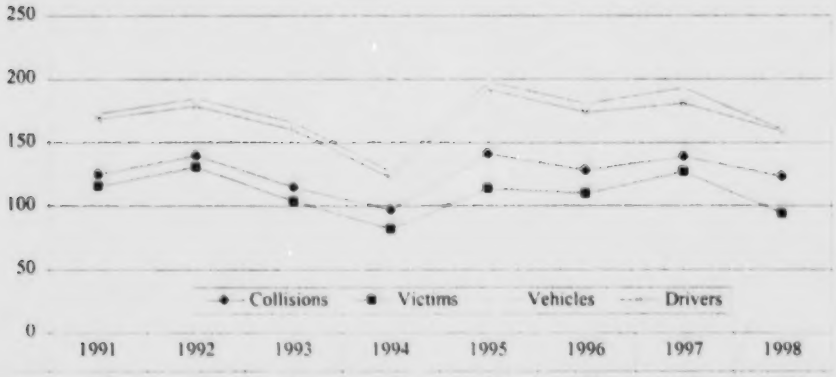


Off-Road Vehicle Collisions

Collision Summary
1991 – 1998

	1991	1992	1993	1994	1995	1996	1997	1998
Total Collisions	125	140	115	97	141	128	139	123
Fatal	7	6	3	9	11	7	12	10
Injury	80	104	78	59	84	84	87	64
Property Damage	38	30	34	29	46	37	40	49
Total Victims	116	131	104	82	114	110	127	94
Killed	7	6	3	9	11	8	15	10
Injured	109	125	101	73	103	102	112	84
Total Vehicles Involved	173	185	166	127	198	181	193	160
Fatal	10	9	5	11	16	8	21	13
Injury	111	132	117	78	110	118	116	83
Property Damage	52	44	44	38	72	55	56	64
Total Drivers Involved	169	179	160	122	192	174	181	159
Fatal	10	8	5	11	16	8	19	12
Injury	111	132	116	76	106	116	108	83
Property Damage	48	39	39	35	70	50	54	64

Comparison of Total Off-Road Vehicle Collisions
by Collision Victims, Vehicle Involvement and Driver Involvement
1991 – 1998



	1991	1992	1993	1994	1995	1996	1997	1998
Collisions	125	140	115	97	141	128	139	123
Victims	116	131	104	82	114	110	127	94
Vehicles	173	185	166	127	198	181	193	160
Drivers	169	179	160	122	192	174	181	159

Collision Summary by Vehicle Involvement 1998

	Snowmobile	ATV[1]	Motorcycle	Other[2]	Total
Total Collisions	99	17	7	0	123
Fatal	7	3	0	0	10
Injury	49	10	5	0	64
P. Damage	43	4	2	0	49
Total Victims	70	14	4	6	94
Killed	7	3	0	0	10
Injured	63	11	4	6	84
Total Vehicles Involved	117	19	7	17	160
Fatal	10	3	0	0	13
Injury	61	12	5	5	83
P. Damage	46	4	2	12	64
Total Drivers Involved	116	19	7	17	159
Fatal	9	3	0	0	12
Injury	61	12	5	5	83
P. Damage	46	4	2	12	64

1. ATV (All Terrain Vehicles) includes 3, 4 and 6 wheel types.
2. Vehicles not registered as an off-road vehicle, including not stated category.

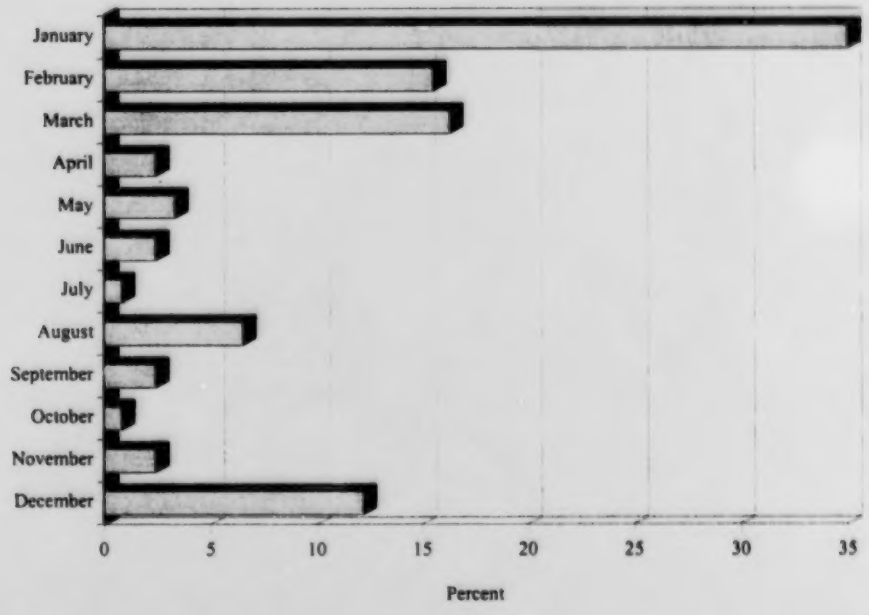
Snowmobiles accounted for 80.5% (99) of the total number of off-road vehicle accidents, 73.2% of the total vehicles involved and 73.0% (116) of the drivers involved. Snowmobile collisions made up 74.5% (70) of the total number of victims, 70.0% (7) of the victims killed and 75.0% (63) of the victims injured.

By Month of Occurrence and Collision Type
1998

Month	Collision Type			Total	%
	Fatal	Injury	P. Damage		
January	2	22	19	43	35.0
February	4	7	8	19	15.5
March	1	11	8	20	16.3
April	0	1	2	3	2.4
May	0	4	0	4	3.3
June	0	2	1	3	2.4
July	0	0	1	1	0.8
August	1	6	1	8	6.5
September	1	2	0	3	2.4
October	1	0	0	1	0.8
November	0	2	1	3	2.4
December	0	7	8	15	12.2
Total	10	64	49	123	100.0

January, February and March accounted for 66.7% (82) of the total off-road vehicle collisions. February had the highest number of fatal accidents 4 (40.0%). January and March have the highest number of injury collisions, 34.4% (22) and 17.2% (11) respectively.

Distribution of Total Off-Road Vehicle Collisions
by Month of Occurrence
1998

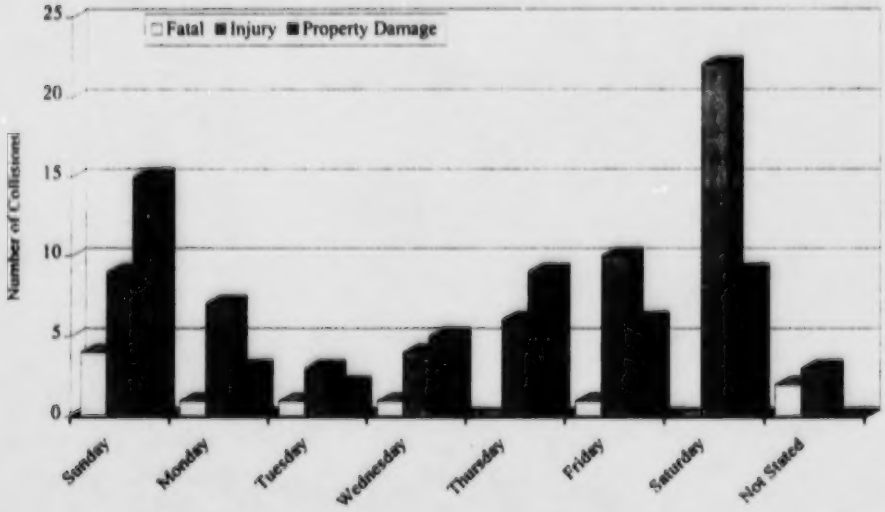


By Day of Occurrence and Collision Type
1998

Day	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Sunday	4	9	15	28	22.8
Monday	1	7	3	11	8.9
Tuesday	1	3	2	6	4.9
Wednesday	1	4	5	10	8.1
Thursday	0	6	9	15	12.2
Friday	1	10	6	17	13.8
Saturday	0	22	9	31	25.2
Not Stated	2	3	0	5	4.1
Total	10	64	49	123	100.0

Sunday (4) had the highest number of fatal collisions followed by Monday, Tuesday, Wednesday, and Friday which accounted for 1 fatal accident each. There were no fatal collisions on Thursday or Saturday. Most injury collisions (64.1% or 41) occurred during the period Friday (10), Saturday (22) and Sunday (9). In contrast, Monday (7), Tuesday (3), Wednesday (4), and Thursday (6) accounted for 31.2% (20) of the total injury accidents. The period Friday (6), Saturday (9), and Sunday (15) had 61.2% (30) of the total property damage collisions as compared to 19 property damage collisions during the period Monday (3), Tuesday (2), Wednesday (5), and Thursday (9).

Comparison of Off-Road Vehicle Collisions
by Day of Occurrence and Collision Type
1998

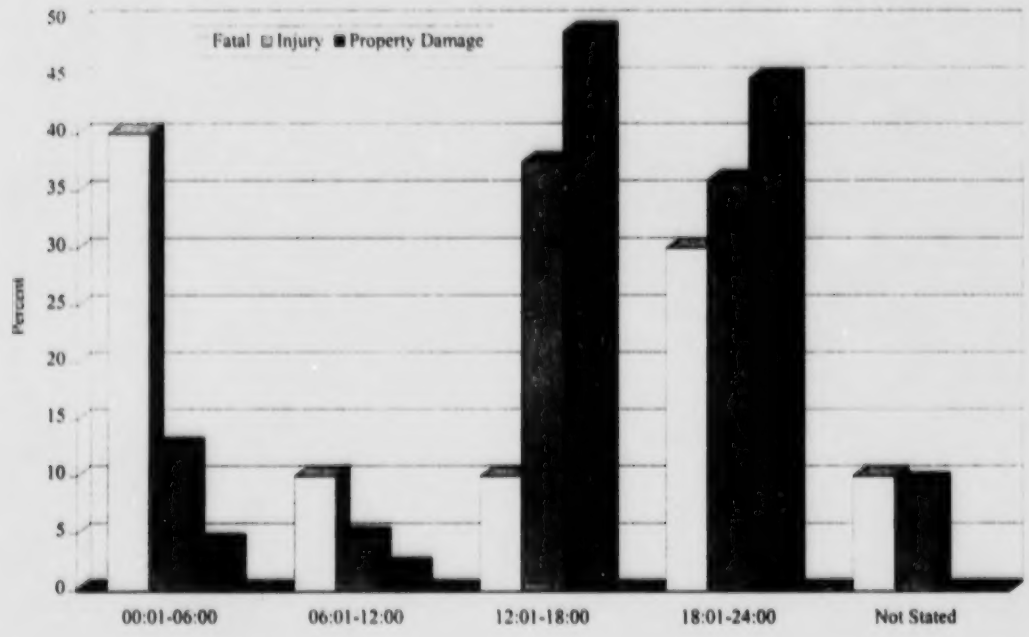


By Time of Occurrence and Collision Type
1998

Time	Collision Type			Total	%
	Fatal	Injury	P. Damage		
00:01 – 06:00	4	8	2	14	11.4
06:01 – 12:00	1	3	1	5	4.1
12:01 – 18:00	1	24	24	49	39.8
18:01 – 24:00	3	23	22	48	39.0
Not Stated	1	6	0	7	5.7
Total	10	64	49	123	100.0

The majority of off-road vehicle collisions occurred between the hours of 12:01-18:00 and 18:01-24:00, 39.8% and 39.0%, respectively.

Comparison of Total Off-Road Vehicle Collisions
by Time of Occurrence and Collision Type
1998

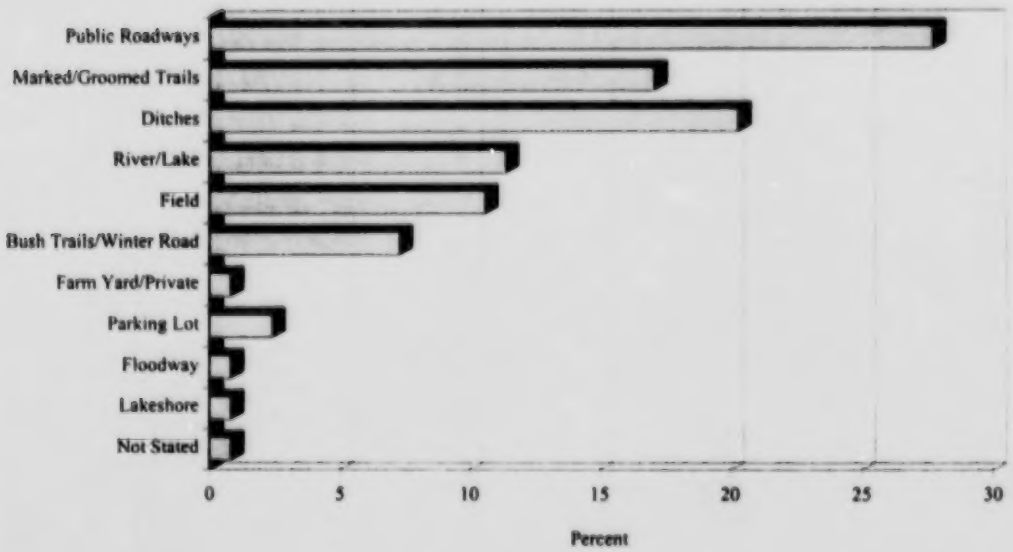


By Collision Location and Collision Type
1998

Location	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Public Roadway	1	20	13	34	27.7
Ditches	2	9	14	25	20.3
River/Lake	1	8	5	14	11.4
Field	1	8	4	13	10.6
Bush Trails/Winter Road	1	5	3	9	7.3
Farm Yard/Private Property	0	1	0	1	0.8
Marked/Groom Trails	2	11	8	21	17.1
Parking Lot	0	1	2	3	2.4
Lakeshore	1	0	0	1	0.8
Floodway/Diversion	1	0	0	1	0.8
Not Stated	0	1	0	1	0.8
Total	10	64	49	123	100.0

"Public roadways" (27.7%), "marked/groomed trails" (17.1%), "river/lake" (11.4%), and "field" (10.6%) were the most frequently identified locations where off-road vehicle accidents occurred.

Distribution of Total Off-Road Vehicle Collisions
by Collision Location
1998



Off-Road Vehicle Collision Victims by Age Group, Injury Type and Sex 1998

Age Group	Injury Type						Total Victims
	Killed			Injured			
	Male	Female	Total	Male	Female	Total	
0-4	0	0	0	1	0	1	1
5-9	0	0	0	3	0	3	3
10-14	0	0	0	5	6	11	11
15-19	2	0	2	16	2	18	20
20-24	0	1	1	10	2	12	13
25-34	1	1	2	15	2	17	19
35-44	3	0	3	10	3	13	16
45-54	0	1	1	3	2	5	6
55-64	0	0	0	2	0	2	2
65>	1	0	1	0	1	1	2
Not Stated	0	0	0	1	0	1	1
Total	7	3	10	66	18	84	94

Male victims made up 77.7% (73) of all persons killed or injured, whereas females accounted for 22.3% (21). The 35-44 age group accounted for the highest number killed (3, or 30%), while the highest number injured occurred in the 15-19 and 25-34 age groups, with 18 (21.4%) and 17 (20.2%) respectively.

Off-Road Vehicle Collision Victims by Safety Equipment and Injury Type 1998

Safety Equipment	Injury Type		Total Victims
	Killed	Injured	
Safety Helmet Worn	6	34	40
Safety Helmet Not Worn	4	37	41
Not Stated	0	10	10
Not Applicable	0	3	3
Total	10	84	94

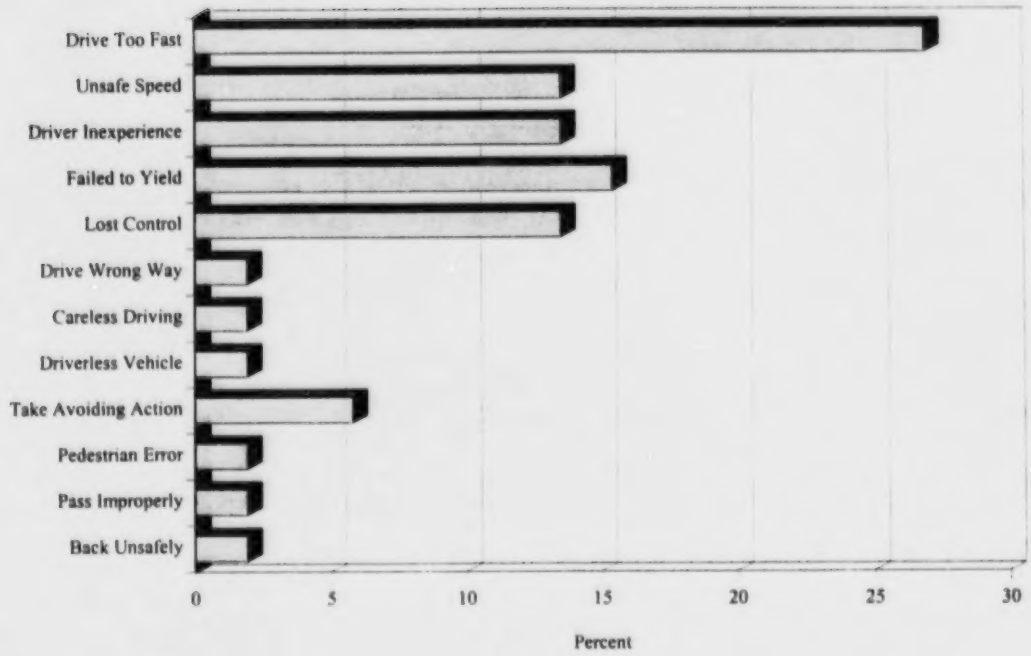
Of the total number of off-road vehicle collision victims, 43.6% (41) were cited as not wearing a safety helmet at time of collision occurrence. Safety helmets were worn by 42.6% (40) of the collision victims.

Driver Involvement
by Driver Action and Collision Type
1998

Driver Action	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Drive Properly [1]	0	14	21	35	22.1
Drive Too Fast For Conditions	3	9	2	14	8.8
Drive Wrong Way	0	1	0	1	0.6
Failed to Yield Right-of-way	0	3	5	8	5.1
Lost Control/Drive off Roadway	3	2	2	7	4.4
Driverless Vehicle	0	1	0	1	0.6
Careless Driving	0	0	1	1	0.6
Take Avoiding Action	0	0	3	3	1.9
Driver Inexperience	0	7	0	7	4.4
Pass Improperly	1	0	0	1	0.6
Back Unsafely	0	1	0	1	0.6
Unsafe Operating Speed	1	5	1	7	4.4
Pedestrian Error	0	1	0	1	0.6
Not Stated	4	39	29	72	45.3
Total	12	83	64	159	100.0

1. No apparent improper driving action.

Comparison of At-Fault Driver Actions
in Off-Road Vehicle Collisions
1998



At-fault driver actions accounted for 52 (32.6%) of all driver actions resulting in off-road vehicle collisions. Of these at-fault driving actions, "driving too fast for conditions" (26.9%), "failing to yield" (15.4%), "unsafe operating speed" (13.5%), "losing control/driving off roadway" (13.5%), and "driver inexperience" (13.5%) were identified as the most common driver actions contributing to off-road vehicle accidents.

Driver Involvement
by At-Fault Human Condition Factors and Collision Type
1998

Human Condition	Collision Type			Total	%
	Fatal	Injury	P. Damage		
Apparently Normal	0	29	34	63	39.6
Distraction/Inattention	0	5	2	7	4.4
Ability Impaired by Alcohol	2	7	0	9	5.7
Had Been Drinking/Suspected Alcohol Use[1]	2	6	0	8	5.1
Medical Disability	1	0	0	1	0.6
Not Stated	7	36	28	71	44.6
Total	12	83	64	159	100.0

1. These statistics are understated and represent only those collisions where alcohol involvement was apparent.

Of the 159 drivers involved in off-road vehicle collisions, 25 or 15.8% were cited with having at-fault human condition factors that lead to collision causation. Of the 12 drivers involved in fatal off-road vehicle collisions 5 or 41.7% were cited with at-fault human condition factors. "Distraction/inattention", "ability impaired by alcohol" and "had been/suspected alcohol use" were reported as the most common at-fault human condition factors.

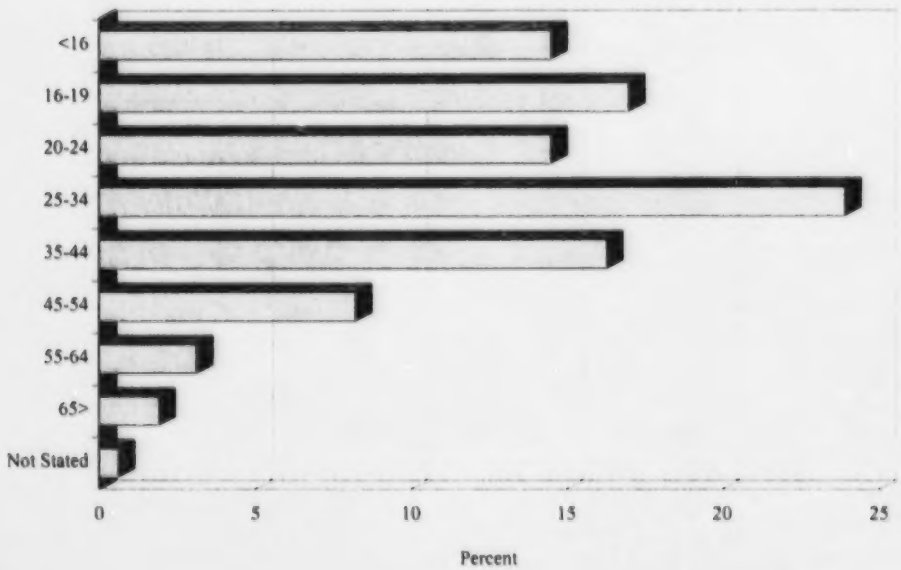
Comparison of At-Fault Human Condition Factors
by Collision Type
1998

Driver Involvement
by Age Group and Collision Type
1998

Age Group	Collision Type			Total	%
	Fatal	Injury	P. Damage		
<16	2	13	8	23	14.5
16-19	1	13	13	27	17.0
20-24	2	12	9	23	14.5
25-34	3	21	14	38	23.9
35-44	3	11	12	26	16.3
45-54	0	9	4	13	8.2
55-64	0	2	3	5	3.1
65>	1	1	1	3	1.9
Not Stated	0	1	0	1	0.6
Total	12	83	64	159	100.0

Drivers between the ages of 25 and 44 accounted for 40.2% (64) of the total number of off-road vehicle collisions, followed by 16-24 year old drivers at 31.5% (50), <16 year old drivers at 14.5% (23), and drivers over the age of 44 years, at 13.2% (21).

Distribution of Total Driver Involvement in Off-Road Vehicle Collisions
by Age Group
1998



Section 12

Alcohol-Related Criminal Code Offences

Total Alcohol-Related Criminal Code Offences by Accident/No Accident Involvement 1984 – 1997[1]

Year	Alcohol Content Over .08		Impaired Driving				Refuse Sample		Total
	253-B		253-A		255-2	255.3	254-5		
	No Accident	With Accident	No Accident	With Accident	Injury	Death	No Accident	With Accident	
1984	4045	525	461	100	0	0	501	95	5727
1985	4110	543	474	133	0	0	587	80	5927
1986	3802	528	490	132	22	4	560	113	5651
1987	3699	580	503	120	29	2	563	108	5604
1988	3395	535	467	146	33	2	559	115	5252
1989	3392	494	370	110	33	6	484	95	4984
1990	3276	421	332	73	28	2	411	73	4616
1991	3339	373	321	52	44	2	398	62	4591
1992	2683	335	269	55	41	3	321	45	3752
1993	2210	308	282	52	29	3	274	59	3217
1994	2208	308	344	61	34	2	292	70	3319
1995	2298	180	366	39	25	3	227	37	3175
1996	2133	134	303	31	24	0	227	23	2875
1997	2378	141	338	28	37	3	250	27	3202
% Change 96-97	11.5	5.2	11.6	-9.7	54.2	-.-	10.1	17.4	11.4

1. Driver and Vehicle Licencing's alcohol statistic collection is structured to accommodate a "two-year" updating period due to a potential backlog in the court process. Consequently, there is a one-year delay in reporting alcohol statistics.

Overall, there has been a 44.1% drop in the number of alcohol-related Criminal Code offences between 1984 and 1997, from 5,727 to 3,202. The 4.7% (276) decrease between 1985 and 1986 and a further 11.8% (667) drop between 1986 and 1989 coincided with the introduction of stiffer penalties in 1986. Manitoba's countermeasure program, launched in 1989, may have contributed to a 7.4% (368) decline in alcohol-related offences from 4,984 in 1989 to 4,616 in 1990. This Manitoba-based initiative may also have contributed to a 30.6% decline between 1990 (4,616) and 1997 (3,202).

Total Alcohol-Related Criminal Code Offences[1] by Age Group 1984-1997

Age Group	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	% Change 84-97
<16	7	8	12	12	6	9	10	12	4	7	5	3	7	7	-.-
16-17	156	160	150	169	156	124	119	104	86	64	49	82	66	105	-32.7
18-20	940	880	752	784	654	622	583	520	426	286	363	364	366	430	-54.3
21-24	1178	1196	1176	1093	945	909	744	709	606	494	473	471	388	495	-58.0
25-29	972	1143	1103	1061	1066	983	940	923	667	584	553	518	447	451	-53.6
30-34	723	752	802	801	745	755	704	728	624	543	566	547	394	440	-39.1
35-39	528	600	567	541	552	516	538	527	431	402	435	422	387	440	-16.7
40-44	376	371	365	441	416	392	341	389	365	292	288	278	267	302	-19.7
45-49	282	298	234	254	271	242	223	240	206	194	205	177	208	201	-28.7
50-54	243	208	177	179	174	163	179	176	129	146	138	111	151	130	-46.5
55-59	140	164	147	125	130	133	92	110	83	79	88	86	71	78	-44.3
60-64	105	68	103	84	83	65	73	71	62	67	86	59	66	50	-52.4
65-69	46	56	43	38	38	46	46	47	42	31	42	33	32	44	-4.3
70-74	23	18	14	14	12	19	19	26	13	22	24	11	10	18	-21.7
75>	8	5	6	8	4	6	5	9	8	6	4	13	15	11	+37.5
Total	5727	5927	5651	5604	5252	4984	4616	4591	3752	3217	3319	3175	2875	3202	-44.1

1. Includes alcohol content over .08, impaired driving, impaired driving causing injury and/or death, and refuse sample.

The greatest percentage decline in the number of alcohol-related Criminal Code convictions during the period 1984-1997 occurred among the age groups 21-24, from 1,178 to 495; 18-20, from 940 to 430; and 25-29, from 972 to 451. Only the age group 75> showed an increase, from 8 to 11.

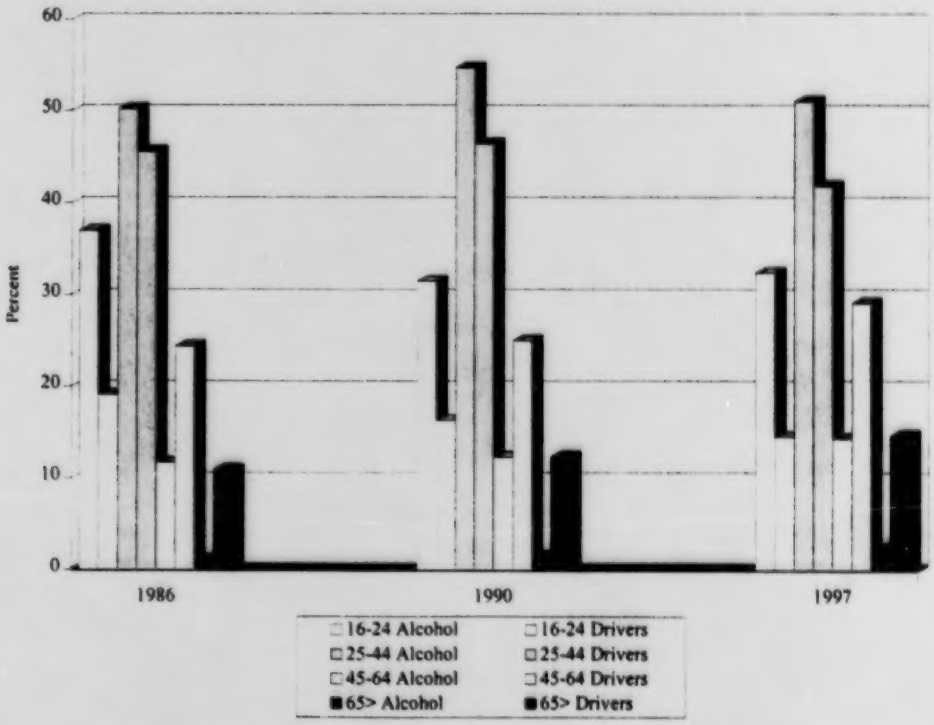
Comparison of Alcohol-Related Criminal Code Offences by Active Licenced Drivers and Selected Age Group 1986, 1990 and 1997[1]

Age Group	1986			1990			1997		
	Total Alcohol	% Total Alcohol	% Active Licenced Drivers	Total Alcohol	% Total Alcohol	% Active Licenced Drivers	Total Alcohol	% Total Alcohol	% Active Licenced Drivers
16-24[2]	2090	37.0	19.1	1456	31.5	16.3	1037	32.4	14.5
25-44	2837	50.2	45.6	2523	54.7	46.4	1633	51.0	41.8
45-64	661	11.7	24.4	567	12.3	25.0	459	14.3	29.1
65>	63	1.1	10.9	70	1.5	12.3	73	2.3	14.6
Total	5651	100.0	100.0	4616	100.0	100.0	3202	100.0	100.0

1. Years chosen to reflect changes to Criminal Code penalties and the introduction of Manitoba's countermeasure program.
2. Includes statistics for individuals under the age of 16 who have been convicted of alcohol-related Criminal Code offence but who are not licenced drivers.

In comparing total number of alcohol-related Criminal Code offences to the number of active licenced drivers certain age groups are over-represented. In 1986, 16 to 24 year old drivers made up only 19.1% of the total active licenced drivers, but accounted for 37.0% of the total number of alcohol-related Criminal Code offences. In 1997 the same age group represented 14.5% of the total number of active licence drivers and 32.4% of the total number of alcohol-related Criminal Code offences. In contrast, the 45-64 age group made up 24.4% of the total active drivers in 1986 and 29.1% in 1997, respectively, but accounted for only 11.7% of the total number of alcohol-related Criminal Code offences in 1986 and only 14.6% in 1997.

Comparison of Alcohol-Related Criminal Code Offences by Active Licenced Drivers and Selected Age Groups 1986, 1990 and 1997

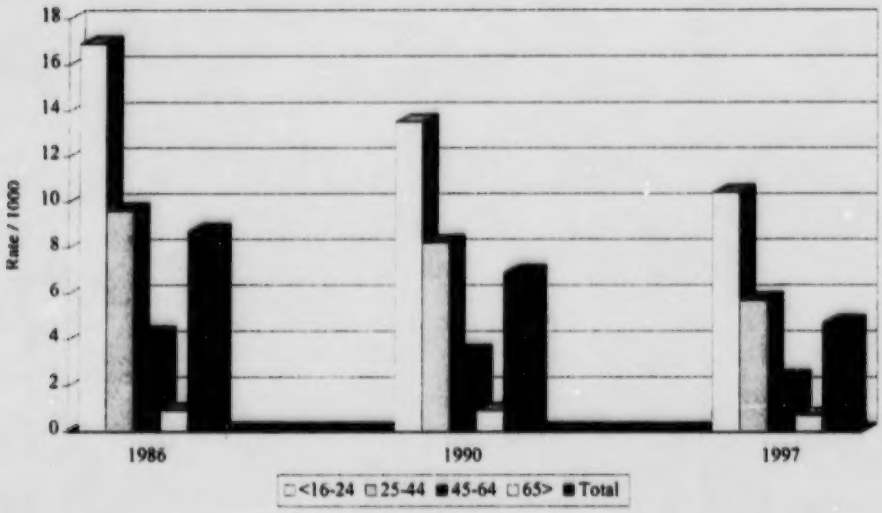


Ratio of Alcohol-Related Criminal Code Offences to Licenced Drivers by Selected Age Groups 1986, 1990 and 1997

Age Group	1986			1990			1997		
	Alcohol Offences [1]	Licenced Drivers	Rate /1000	Alcohol Offences	Licenced Drivers	Rate /1000	Alcohol Offences	Licenced Drivers	Rate /1000
<16-24	2090	123707	16.9	1456	108060	13.5	1037	99793	10.4
25-44	2837	294105	9.6	2523	308301	8.2	1633	287287	5.7
45-64	661	157412	4.2	567	166000	3.4	459	200371	2.3
65>	63	70251	0.9	70	82203	0.9	73	99778	0.7
Total	5651	645475	8.7	4616	664564	6.9	3202	687229	4.7

1. *For comparative purposes the report assumes each alcohol-related Criminal Code conviction is for a single licenced driver although a single driver may obtain more than one alcohol-related Criminal Code conviction in any given year.*

Comparison of Alcohol-Related Criminal Code Convictions /1000 Drivers by Selected Age Group 1986, 1990 and 1997



The <16-24 year old age group has the highest relative involvement rate with alcohol-related Criminal Code offences over the three years under review: 16.9/1000 in 1986, 13.5/1000 in 1990 and 10.4/1000 in 1997. The age group 25-44 had relative involvement rates that decreased from 9.6/1000 in 1986, to 8.2/1000 in 1990 to 5.7/1000 in 1997. The 45-64 year old relative involvement rates decreased from 4.2/1000 in 1986, to 3.4/1000 in 1990 and to 2.3/1000 in 1997. The 65> age group had relative involvement rates that remained relatively consistent over the three years under review, 0.9/1000 in both 1986 and 1990 and 0.7/1000 in 1997.

Alcohol-Related Criminal Code Offences by First Offence Occurrence Rate and Age Group 1986, 1990 and 1997

Age Group	First Offence Occurrence Conviction					
	1986		1990		1997	
	Convictions	% of Total	Convictions	% of Total	Convictions	% of Total
<16-24	1606	40.0	1185	32.9	919	33.6
25-44	1874	46.7	1917	53.2	1364	50.0
45-64	476	11.9	436	12.1	384	14.1
65>	57	1.4	63	1.8	64	2.3
Total	4013	100.0	3601	100.0	2731	100.0

Comparison of First Offence Occurrence Rates by Selected Age Groups 1986, 1990 and 1997

The <16-24 age group's share of first-time alcohol-related Criminal Code offences decreased from 40.0% in 1986 to 32.9% in 1990 and 33.6% in 1997. The highest share was held by drivers in the 25-44 age group, with 46.7% in 1986, 53.2% in 1990 and 50.0% in 1997. The share of the 45-64 age group increased from 11.9% in 1986, to 12.1 in 1990 and 14.4% in 1997. The 65> age group accounted for 1.4% of first-time occurrences in 1986, 1.8% in 1990 and 2.3% in 1997.

Alcohol-Related Criminal Code Offences by Second Offence Occurrence Rates and Age Group 1986, 1990 and 1997

Age Group	Second Offence Occurrence Conviction					
	1986		1990		1997	
	Convictions	% of Total	Convictions	% of Total	Convictions	% of Total
<16-24	350	34.1	204	30.4	104	28.2
25-44	551	53.7	373	55.6	202	54.7
45-64	121	11.8	88	13.1	56	15.2
65>	4	0.4	6	0.9	7	1.9
Total	1026	100.0	671	100.0	369	100.0

Comparison of Second Offence Occurrence Rates by Selected Age Groups 1986, 1990 and 1997

The 16-24 year old age group's share of second-time alcohol-related Criminal Code offences dropped from 34.1% in 1986, to 30.4% in 1990 and 28.2% in 1997. The share held by the 25-44 age group amounted to 53.7% in 1986, 55.6% in 1990, and 54.7% in 1997. The share of the 45-64 year old age group rose from 11.8% in 1986, to 13.1% in 1990 and to 15.2% in 1997. The share of the 65> year old age group increased from 0.4% in 1986, to 0.9% in 1990 and to 1.9% in 1997.

Alcohol-Related Criminal Code Offences by Third/Subsequent Offence Occurrence Rate and Age Group 1986, 1990 and 1997

Age Group	Third/Subsequent Offence Occurrence Conviction					
	1986		1990		1997	
	Convictions	% of Total	Convictions	% of Total	Convictions	% of Total
<16-24	134	21.9	67	19.5	14	13.7
25-44	412	67.3	233	67.7	67	65.7
45-64	64	10.5	43	12.5	19	18.6
65>	2	0.3	1	0.3	2	2.0
Total	612	100.0	344	100.0	102	100.0

Comparison of Third/Subsequent Offence Occurrence Rates by Selected Age Groups 1986, 1990 and 1997

The share of third/subsequent alcohol-related Criminal Code occurrence rates held by the 16-24 age group decreased from 21.9% in 1986 to 19.5% in 1990 and to 13.7% in 1997. The share of the 25-44 age group increased from 67.3% in 1986, to 67.7% in 1990 but dropped to 65.7% in 1997. The share of the 45-64 age group rose from 10.5% in 1986, to 12.5% in 1990 and to 18.6% in 1997. The share held by the 65 and over age group has remained low, at 0.3% in 1986 and 1990 and 2.0% in 1997.

Total Alcohol-Related Criminal Code Offences by Age Group and Conviction Type 1997*

Age Group	Alcohol Content Over .08		Impaired Driving				Refuse Sample		Total
	253-B		253-A		255-2	255-3	254-5		
	No Accident	With Accident	No Accident	With Accident	Injury	Death	No Accident	With Accident	
<16	6	0	0	0	0	0	1	0	7
16-17	86	1	13	0	4	1	0	0	105
18-20	339	17	36	4	6	0	26	2	430
21-24	406	20	35	3	6	0	23	2	495
25-29	333	11	58	8	6	1	30	4	451
30-34	316	25	49	7	2	1	35	5	440
35-39	311	25	46	2	8	0	42	6	440
40-44	214	18	37	1	2	0	28	2	302
45-49	138	7	25	2	2	0	24	3	201
50-54	91	4	14	1	0	0	19	1	130
55-59	53	4	11	0	0	0	10	0	78
60-64	33	3	7	0	0	0	7	0	50
65-69	32	4	3	0	1	0	3	1	44
70-74	11	2	3	0	0	0	1	1	18
75>	9	0	1	0	0	0	1	0	11
Total	2378	141	338	28	37	3	250	27	3202

* *Driver and Vehicle Licencing's alcohol statistics collection is structured to accommodate a "two year" updating period due to a potential backlog in the court process. Consequently, there is a one year delay in reporting alcohol statistics.*

PART II

Traffic Collision Statistics

Manitoba

1998

Provincial Trunk Highways
and
Provincial Roads

Traffic Engineering Branch

Preface

The following report provides an analysis of reported traffic collisions on record that have been identified as occurring on the provincial highway system. The purpose of producing these statistics is to provide an overview of the types of collisions that occur on the highway system; to attempt to identify collision prone locations; and to provide a basis of comparison for these collision prone locations. It is a continuation of the "1997 Traffic Collision Statistics on Manitoba Provincial Trunk Highways and Provincial Roads" compiled by the Traffic Engineering Branch.

In Section 1, the traffic collision statistics are summarized according to the categories urban, suburban and rural and by the total number of collisions occurring in each. These categories are defined according to the legal, posted speed limit on the provincial highway system: the urban category - 50 or 60 km/h; suburban category - 70 or 80 km/h; and rural category - 90 or 100 km/h. Section 2, construction-related collisions, provides an overview of traffic collisions that were reported to occur within construction or maintenance zones. The last section, Comparison of Intersection Collision Data, presents an overview of traffic collisions by intersection. The intersection data is presented according to eleven intersection types based on their functional classification, and whether they are in a rural, suburban or urban environment.

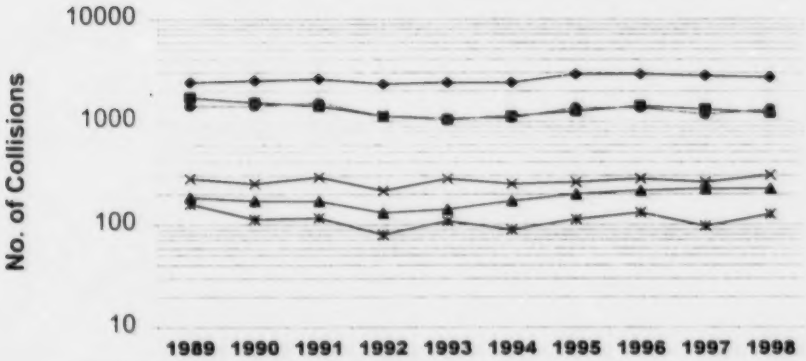
In 1998 there were 5738 reported collisions on record that involved 8111 vehicles. Due to different speed limits on intersecting highways this report reflects 139 collisions more than actually occurred. Slightly over 68% of the total collisions occurred on the rural highway system.

Users of this report are invited to comment on the format of the data provided and to make suggestions as to any other data that would be useful. The Traffic Engineering Branch is located at 1510 - 215 Garry Street, Winnipeg, telephone: (204) 945-3781 fax: (204) 948-2554.

Section 1

Provincial Highway Collisions

Collision Trends by Posted Speed Limit 1989-1998



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
100	2394	2509	2595	2276	2361	2349	2918	2916	2806	2697
90	1684	1496	1382	1106	1022	1126	1271	1392	1327	1225
80	186	170	169	132	142	171	194	209	224	222
70	273	249	292	212	279	246	257	280	256	296
60	156	112	115	81	109	88	111	130	97	126
50	1407	1414	1525	1104	1087	1070	1353	1330	1156	1311

The major reason for the yearly variations in the number of collisions in the 100 km/h and 90 km/h categories, is due to speed limit changes on a number of highways. Prior to 1986, only portions of the following highways were 100 km/h: #1, #6, #10, and #16. In April of 1986, the following highways were raised to 100 km/h: #2, #3, #5, #7, #11, #12, #44, #59, #75, and #83; including the remainder of #1, #6, #10, and #16. In April of 1989, the balance of the Provincial Trunk Highways except #26, #100, and #101 were raised to 100 km/h. In April of 1992, #100 and #101 were raised to 100 km/h. These highways were all previously 90 km/h speed limits. Portions of highways #1, #2, #3, #7, #8, #9, #11, #14, #15, #17, #26, #44 and #59 still remain at 90 km/h for various reasons.

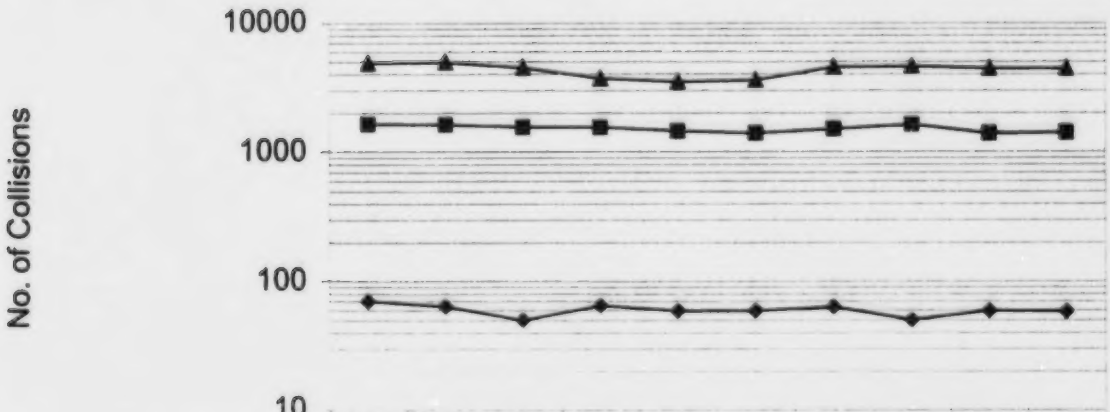
The increase after 1995 in the various speed zones is attributed to a new computer system that allows for more accuracy in the data. This increase also shows up in the collision severity data for the same years.

By Severity and Category
1998

Severity	Category			Total
	Rural	Suburban	Urban	
Fatal	47	6	5	58
Injury	895	161	356	1412
Property Damage	2980	351	1076	4407
Total	3922	518	1437	5877*

* The total of 5877 represents 5738 reported collisions on record plus 139 collisions that occurred at the intersection of two highways that do not have the same legal speed limit.

Total Provincial Highway Collisions
by Severity
1998

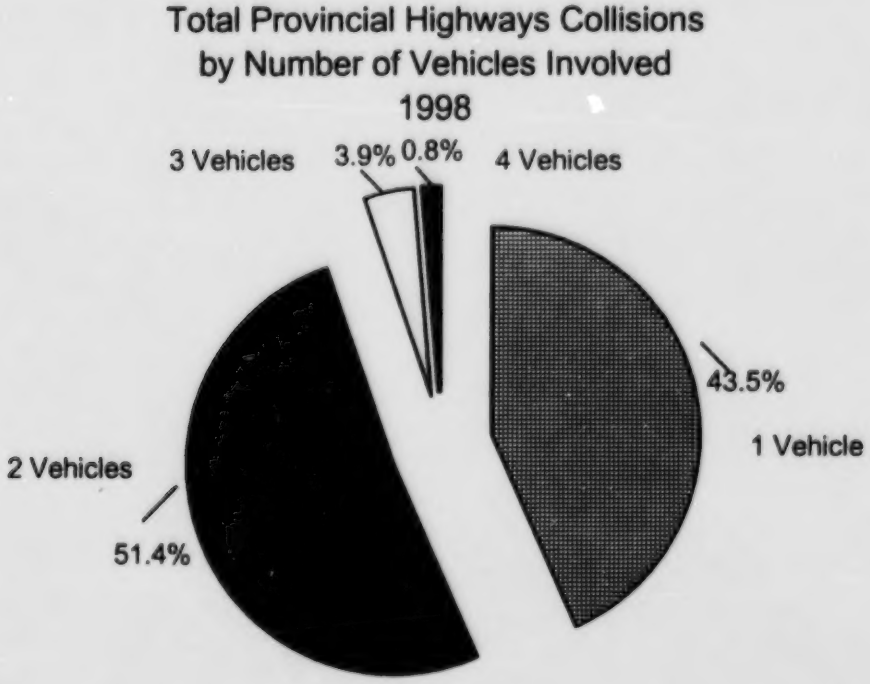


	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Fatal	70	64	50	65	59	59	63	50	59	58
Injury	1642	1628	1552	1550	1453	1393	1502	1625	1386	1412
Property Damage	4877	4937	4476	3707	3488	3598	4539	4582	4421	4407

By Number of Vehicles Involved
and Category
1998

No. of Vehicles	Category			Total
	Rural	Suburban	Urban	
1	3123	195	208	3526
2	1398	547	2221	4166
3	73	36	206	315
4	32	0	40	72
5	15	0	5	20
6	6	0	6	12
Total	4647	778	2686	8111*

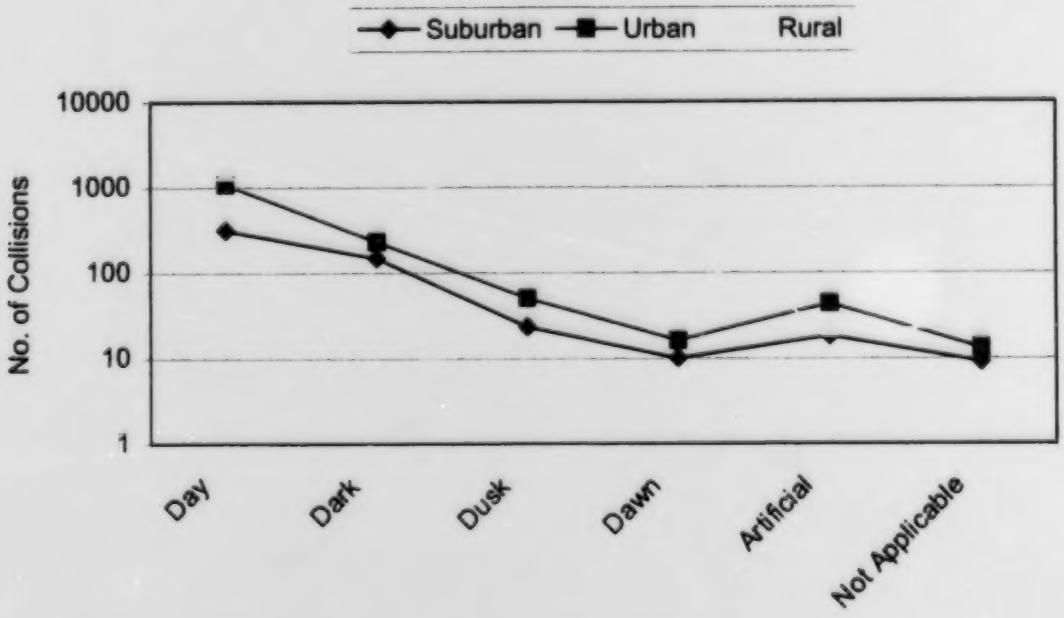
* The total of 8111 represents the total number of vehicles involved in collisions on record.



By Light Condition and Category
1998

Condition	Category			Total
	Rural	Suburban	Urban	
Day	1538	312	1084	2934
Dawn	168	10	16	194
Dusk	354	23	50	427
Dark	1818	146	231	2195
Artificial	22	18	43	83
Not Applicable	22	9	13	44
Total	3922	518	1437	5877

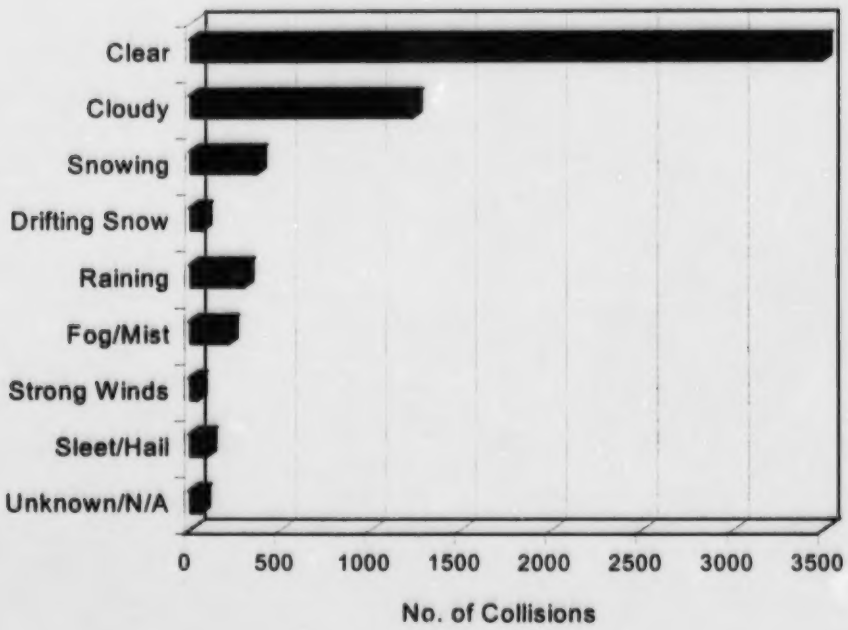
Total Provincial Highway Collisions
by Light Conditions and Category
1998



By Weather Condition and Category
1998

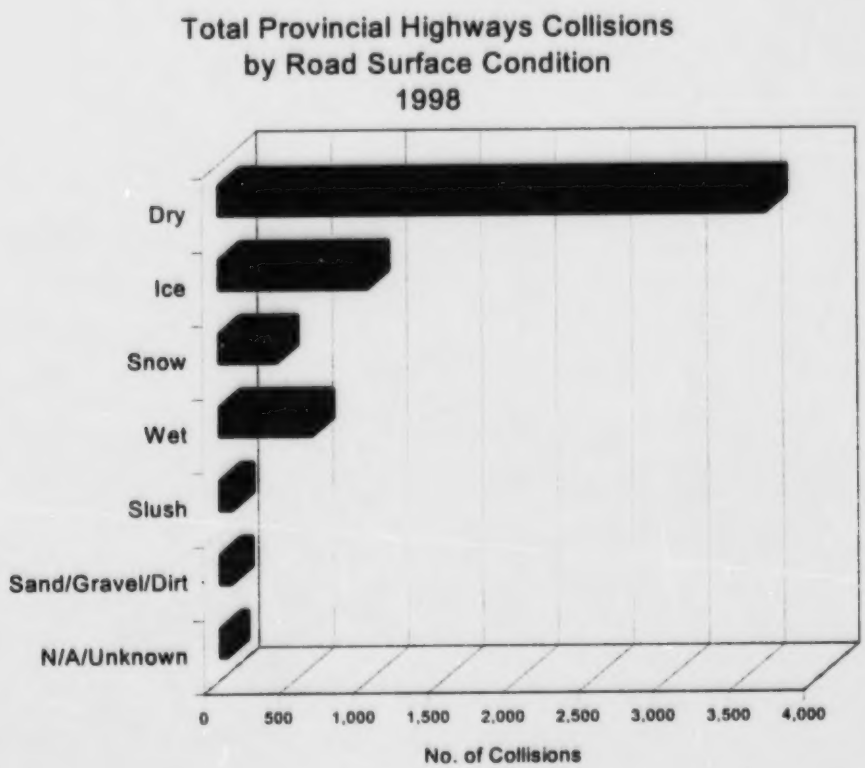
Condition	Category			Total
	Rural	Suburban	Urban	
Clear	2341	304	849	3494
Cloudy	753	114	367	1234
Raining	188	36	75	299
Snowing	233	35	100	368
Fog or Mist	183	9	20	212
Smoke or Dust	16	0	1	17
Freezing Rain/Sleet/Hail	82	6	4	92
Drifting Snow	59	2	3	64
Strong Winds	33	4	2	39
Unknown	5	1	2	8
Not Applicable	29	7	14	50
Total	3922	518	1437	5877

Total Provincial Highways Collisions
by Weather Condition
1998



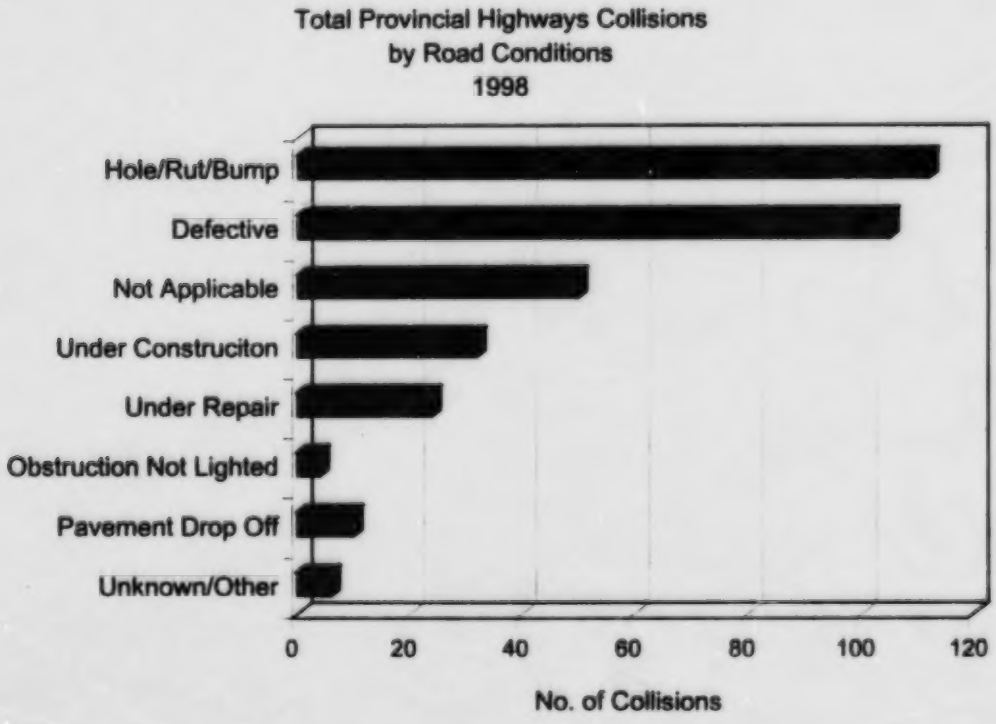
By Road Surface Condition and Category
1998

Condition	Category			Total
	Rural	Suburban	Urban	
Dry	2547	302	803	3652
Wet	368	73	182	623
Mud	11	0	1	12
Snow	215	33	137	385
Ice	642	91	264	997
Slush	51	7	28	86
Loose Sand/Gravel/Dirt	64	5	7	76
Fresh Oil	1	0	1	2
Not Applicable & Unknown	23	7	14	44
Total	3922	518	1437	5877



By Road Condition and Category
1998

Condition	Category			Total
	Rural	Suburban	Urban	
Good	3655	485	1394	5534
Defective	83	5	17	105
Under Repair	17	5	2	24
Under Construction	23	7	2	32
Obstruction Not Lighted	4	0	0	4
Hole/Rut/Bump	98	4	10	112
Pavement Drop Off	8	1	1	10
Unknown/Other	3	3	0	6
Not Applicable	31	8	11	50
Total	3922	518	1437	5877

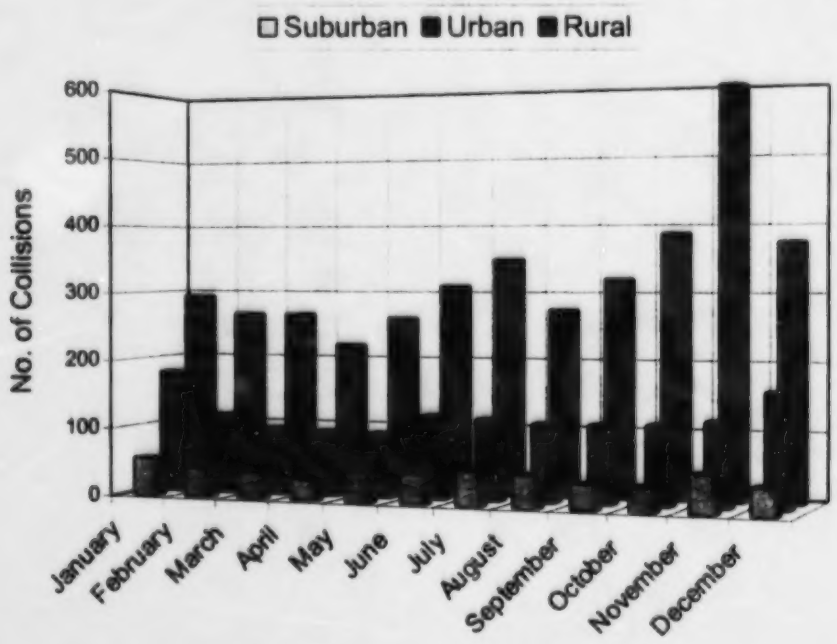


Note: The "Good" condition has been excluded from the graph to present the remaining conditions in a clearer manner.

By Month of Occurrence and Category
1998

Month	Category			Total
	Rural	Suburban	Urban	
January	292	55	179	526
February	265	43	115	423
March	265	38	97	400
April	219	31	94	344
May	260	44	93	397
June	309	43	121	473
July	349	50	117	516
August	274	47	112	433
September	320	37	112	469
October	387	35	114	536
November	608	55	120	783
December	374	40	163	577
Total	3922	518	1437	5877

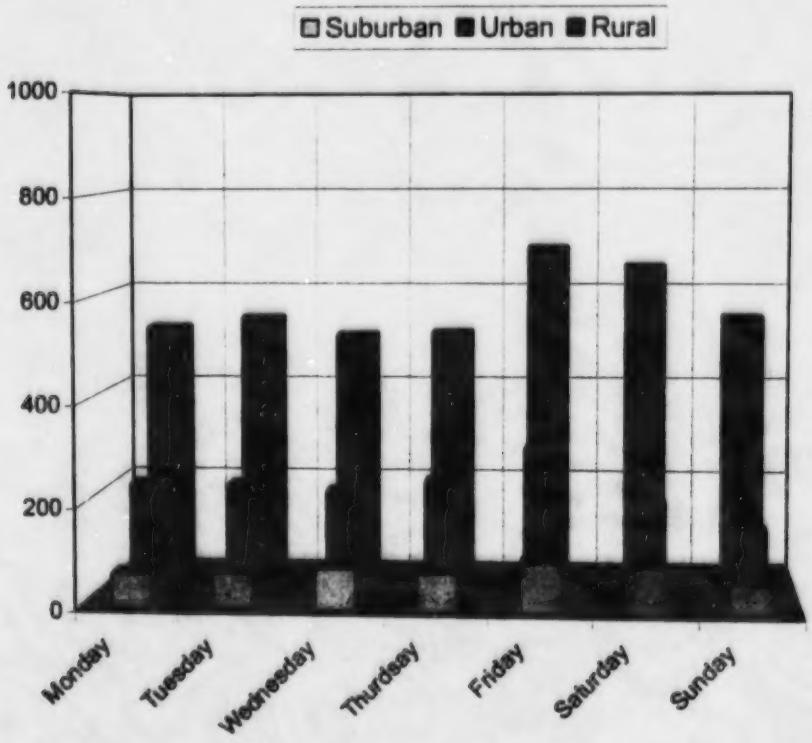
Provincial Highway Collisions
by Month of Occurrence and Category
1998



By Day of Week and Category
1998

Day of Week	Category			Total
	Rural	Suburban	Urban	
Monday	515	65	212	792
Tuesday	536	67	213	816
Wednesday	500	80	201	781
Thursday	506	72	222	800
Friday	682	93	284	1059
Saturday	645	86	180	911
Sunday	538	55	125	718
Total	3922	518	1437	5877

Provincial Highway Collisions
by Day of the Week and Category
1998



By Hour of Day and Category
1998

Hour	Category			Total
	Rural	Suburban	Urban	
00:01 - 01:00	111	17	15	143
01:01 - 02:00	103	10	15	128
02:01 - 03:00	85	15	9	109
03:01 - 04:00	77	7	5	89
04:01 - 05:00	43	9	3	55
05:01 - 06:00	76	5	4	85
06:01 - 07:00	132	10	15	157
07:01 - 08:00	247	20	23	290
08:01 - 09:00	150	27	63	240
09:01 - 10:00	121	14	44	179
10:01 - 11:00	98	27	53	178
11:01 - 12:00	117	20	102	239
12:01 - 13:00	103	26	122	251
13:01 - 14:00	131	22	114	267
14:01 - 15:00	119	29	121	269
15:01 - 16:00	135	28	125	288
16:01 - 17:00	178	38	140	356
17:01 - 18:00	252	52	121	425
18:01 - 19:00	282	32	67	381
19:01 - 20:00	276	24	79	379
20:01 - 21:00	241	26	38	305
21:01 - 22:00	241	20	48	309
22:01 - 23:00	282	11	44	337
23:01 - 24:00	218	18	28	264
Not Stated	104	11	39	154
Total	3922	518	1437	5877

By Vehicle Type and Category
1998

Vehicle Type	Category			Total
	Rural	Suburban	Urban	
Automobile	2381	423	1568	4372
Mini Van/Multi Purpose Van	464	70	208	742
Van under 4500 kg	163	25	87	275
Pick Up under 4500 kg	1151	189	619	1959
Truck over 4500 kg (Unit Chassis)	121	22	42	185
Power Unit for Semi-Trailer	165	23	40	228
Truck/Camper	8	1	0	9
Motorhome	13	0	4	17
Truck (Other)	94	17	48	159
School Bus	5	1	3	9
Other School Vehicle	1	0	0	1
Transit Bus (Urban)	0	0	5	5
Bus (Other)	2	2	0	4
Motorcycle/Scooter	21	4	9	34
Bicycle	5	2	16	23
Ambulance	7	0	1	8
Police	6	2	3	11
Motorized Snow Vehicle (HTA)	0	0	1	1
Farm Equipment	17	1	1	19
Construction Equipment	11	0	3	14
Train	2	0	0	2
Snowmobile	1	0	2	3
Off-Road Motorcycle	1	0	0	1
All Terrain Vehicle	1	0	0	1
Pedestrian	7	1	21	29
Total	4647	783	2681	8111

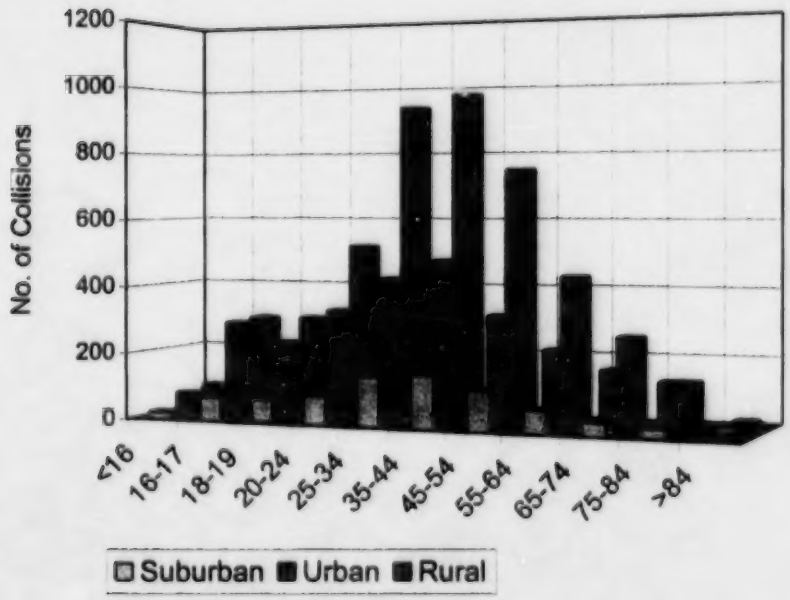
By Collision Configuration and Category
1998

Configuration	Category			Total
	Rural	Suburban	Urban	
Rear End	261	140	454	855
Head On	44	10	7	61
Side Swipe (Opposite Direction)	49	7	19	75
Side Swipe (Same Direction)	67	26	92	185
Overtaking	67	17	42	126
Right Turn (Rear End)	7	2	15	24
Right Turn (Head On)	3	4	17	24
Left Turn (Head On)	10	12	27	49
Left Turn (Rear End)	6	7	22	35
Left Turn (Classic)	28	27	107	162
Intersection (90 Degrees)	204	54	307	565
Off Road – Right	531	55	31	617
Off Road - Left	412	22	18	452
Fixed Object	110	30	58	198
Parking	1	0	49	50
Pedestrian	4	2	23	29
Other	2118	103	149	2370
Total	3922	518	1437	5877

Driver/Pedestrian Involvement By Age Group and Category 1998

Age Group	Category			Total
	Rural	Suburban	Urban	
<16	72	20	62	154
16-17	289	66	283	638
18-19	291	67	227	585
20-24	514	83	327	924
25-34	936	146	424	1506
35-44	975	154	480	1609
45-54	748	116	320	1184
55-64	428	66	224	718
65-74	252	37	171	460
75-84	125	26	140	291
>84	17	2	23	42
Total	4647	783	2681	8111

Driver/Pedestrian Involvement in Provincial Highway Collisions
by Age Group and Category
1998

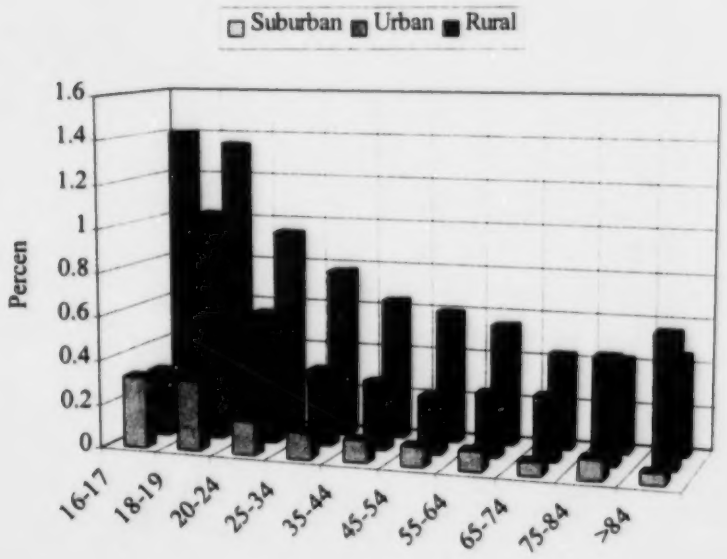


Percentage of Active Drivers Involved in Collisions by Age Group and Category* 1998

Age Group	Total Licenced Drivers	Category			Total (%)
		Rural (%)	Suburban (%)	Urban (%)	
16-17	20681	1.40	0.32	0.30	0.74
18-19	21607	1.35	0.31	1.05	2.71
20-24	54567	0.94	0.15	0.60	1.69
25-34	121430	0.77	0.12	0.35	1.24
35-44	152784	0.64	0.10	0.31	1.05
45-54	124124	0.60	0.09	0.26	0.95
55-64	77496	0.55	0.09	0.29	0.93
65-74	58035	0.43	0.06	0.29	0.79
75-84	29442	0.42	0.09	0.48	0.99
>84	3814	0.45	0.05	0.60	1.10

* The data contained in this table is calculated by dividing the total number of active drivers (see Page 13, Section 2, Part I, Driver Licencing) into the number of reported collisions within each age group. It is assumed that each category is exposed to all drivers licenced within the province.

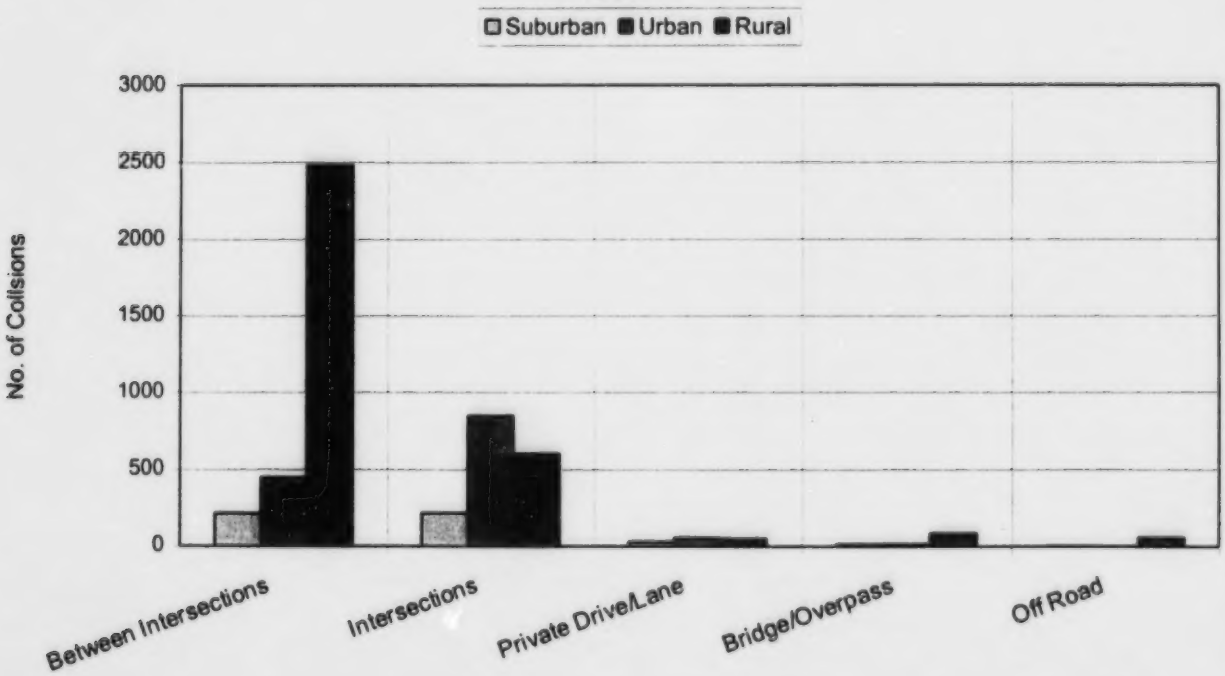
Percentage of Provincial Highway Collisions by Age and Category



By Collision Site Type and Category
1998

Site Type	Category			Total
	Rural	Suburban	Urban	
Intersection	602	217	847	1666
Between Intersections	2486	214	448	3148
Intersection of Private Drive/Lane	49	29	53	131
Railroad Level Crossing	16	0	7	23
Bridge/Overpass	85	14	16	115
Tunnel/Underpass	5	0	1	6
Off-Road	56	4	2	62
Passing/Climbing Lane	18	2	4	24
Not Applicable	601	36	56	693
Unknown/Other	4	2	3	9
Total	3922	518	1437	5877

Provincial Highway Collisions
by Top Five Site Types and Category
1998



Vehicle Involvement
by Sequence of Events, Collision With and Category
1998

Part 1

Event or Collision With	Category			Total
	Rural	Suburban	Urban	
Ditch/Embankment/Earth Slope	604	47	34	685
Approach	8	0	1	9
Traffic Barricade	3	2	0	5
Sign Post	30	7	10	47
Traffic Signal Standard	2	2	6	10
Street Light Standard	3	0	10	13
Telephone/Power Pole	9	8	7	24
Guard Rail	26	7	12	45
Bridge Structure/Abutment	26	2	3	31
Tree/Bush	14	4	9	27
Building/Wall	0	0	1	1
Curbing	6	6	11	23
Fence	2	0	3	5
Culvert/Drainage Structure	4	4	3	11
Snow Bank/Drift	11	2	1	14
Rock Face	8	0	0	8
Delineator Posts	1	0	0	1
Fire Hydrants/Utility Box	0	0	1	1
Median Barrier/Gore	17	4	2	23
Impact Attenuator	17	3	2	22
Subtotal Part 1	791	98	116	1005

Vehicle Involvement
by Sequence of Events, Collision With and Category
1998

Part 2

Event or Collision With	Category			Total
	Rural	Suburban	Urban	
Vehicle	1452	581	2454	4487
Railroad Train	6	0	2	8
Bicyclist	6	2	14	22
Motorcycle	4	1	7	12
Animal	1834	76	23	1933
Pedestrian	5	1	19	25
Farm Machinery	12	1	1	14
Construction Machinery*	15	1	2	18
Snowmobile	1	0	2	3
Off Road Vehicle	2	0	0	2
Ran Off Road	274	11	7	292
Overturned	57	4	2	63
Fire/Explosion	64	2	7	73
Skidding/Sliding	36	1	3	40
Jack-Knifing/Trailer Swing	15	0	2	17
Submersion/Immersion	1	0	0	1
Load Spill	21	1	3	25
Not Applicable	27	2	15	44
Other	24	1	2	27
Subtotal Part 2	3856	685	2565	7106
Subtotal Part 1	791	98	116	1005
Total	4647	783	2681	8111

*Based on a review of the TARS this sequence of events includes maintenance equipment.

Contributing Factors*
By Driver Action and Category
1998

Driver Action	Category			Total
	Rural	Suburban	Urban	
Driving Properly	1503	305	1101	2909
Following Too Closely	50	42	152	244
Turning Improperly	51	15	92	158
Exceeding Speed Limit	30	6	9	45
Driving Too Fast For Conditions	118	36	111	265
Unsafe Operating Speed (Too Fast or Too Slow)	21	7	19	47
Passing Improperly	38	6	13	57
Changing Lanes Improperly	19	10	49	78
Failed To Yield Right Of Way	76	31	182	289
Disobeyed Traffic Control Device/Officer	32	7	62	101
Driving Wrong Way on Roadway	10	1	3	14
Passing A Vehicle At Pedestrian Crosswalk	0	1	0	1
Backing Unsafely	7	3	39	49
Parking Improperly	1	0	5	6
Careless Driving	35	12	32	79
Lost Control/Drive Off Roadway	259	22	35	316
Driverless Vehicle Ran Out Of Control	1	0	3	4
Leave Stop Sign Before Safe To Do So	37	11	47	95
Failed To Signal	9	1	6	16
Taking Avoiding Action	64	15	33	112
Driver Inexperience	64	10	42	116
Pedestrian Error/Confusion	1	0	9	10
Total	2426	541	2044	5011

* Note: There is a maximum of three contributing factors recorded on the Traffic Accident Report for each vehicle involved in a collision. The data presented in this table represents the total number of at-fault 'driver action' factors reported. Due to the number of blank/not applicable entries reported in this data the totals do not correlate to the number of vehicles involved.

Contributing Factors*
By Human Condition and Category
1998

Human Condition	Category			Total
	Rural	Suburban	Urban	
Apparently Normal	1995	381	1570	3946
Loss Of Consciousness/Blackout Prior To Accident	9	5	1	15
Extreme Fatigue/Fell Asleep	91	5	5	101
Defective Eyesight	1	0	3	4
Defective Hearing	0	0	1	1
Medical Disability	2	0	1	3
Physical Disability	3	0	3	6
Mental Confusion/Inability To Remember	4	0	8	12
Sudden Illness	4	3	0	7
Ability Impaired by Alcohol	70	19	22	111
Ability Impaired by Drugs	1	1	0	2
Had Been Drinking/ Suspected Alcohol Use	44	9	14	67
Distraction/Inattention	108	38	179	325
Exceeded Hours of Service	1	0	0	1
Total	2333	461	1807	4601

* Note: There is a maximum of three contributing factors recorded on the Traffic Accident Report for each vehicle involved in a collision. The data presented in this table represents the total number of at-fault 'human condition' factors reported. Due to the number of blank/not applicable entries reported in this data the totals do not correlate to the number of vehicles involved.

Contributing Factors*
By Vehicle Condition and Category
1998

Vehicle Condition	Category			Total
	Rural	Suburban	Urban	
No Apparent Defect	1309	342	1549	3200
Defective Brakes	10	2	11	23
Defective Steering	2	0	1	3
Defective Headlights	2	1	1	4
Defective Brakelights	4	1	1	6
Defective Lighting (Unspecified)	7	0	0	7
Defective Engine Controls/Drive Train	6	2	6	14
Defective Suspension/Wheels	4	0	0	4
Defective Tires	28	1	1	30
Defective Tow Hitch/Yoke	3	0	0	3
Hood/Tailgate/Door/Covering Opened	6	1	0	7
Defective Glazing/Obscured Windows	0	0	1	1
Vehicle Modifications	0	0	1	1
Fire	51	1	7	59
Overloaded/Oversized	3	0	1	4
Load Shifted/Spilled	17	3	3	23
Jack-knifing/Trailer Swing	8	4	2	14
Hydroplaning of Tires	1	0	0	1
Total	1461	358	1585	3404

* Note: There is a maximum of three contributing factors recorded on the Traffic Accident Report for each vehicle involved in a collision. The data presented in this table represents the total number of at-fault 'vehicle condition' factors reported. Due to the number of blank/not applicable entries reported in this data the totals do not correlate to the number of vehicles involved.

Contributing Factors*
By Environmental Condition and Category
1998

Environmental Condition	Category			Total
	Rural	Suburban	Urban	
Animal Action - Wild	1822	75	24	1921
Animal Action - Domestic	45	3	6	54
Slippery Road Surface	485	79	245	809
Snow Drift	33	0	9	42
Obstruction/Debris On Roadway	33	1	7	41
View Obstructed/Limited	57	7	47	111
Glare/Reflection	5	2	13	20
Construction Zone	7	1	1	9
Defective Driving Surface	63	5	2	70
Shoulders Defective	5	1	1	7
Defective/Inoperative Traffic Control Device	2	1	2	5
Weather	95	12	15	122
Pedestrian Corridor in Use	1	0	4	5
Uninvolved Vehicle	14	4	17	35
Uninvolved Pedestrian	0	0	9	9
Presence Of Prior Accident	4	1	0	5
Total	2671	192	402	3265

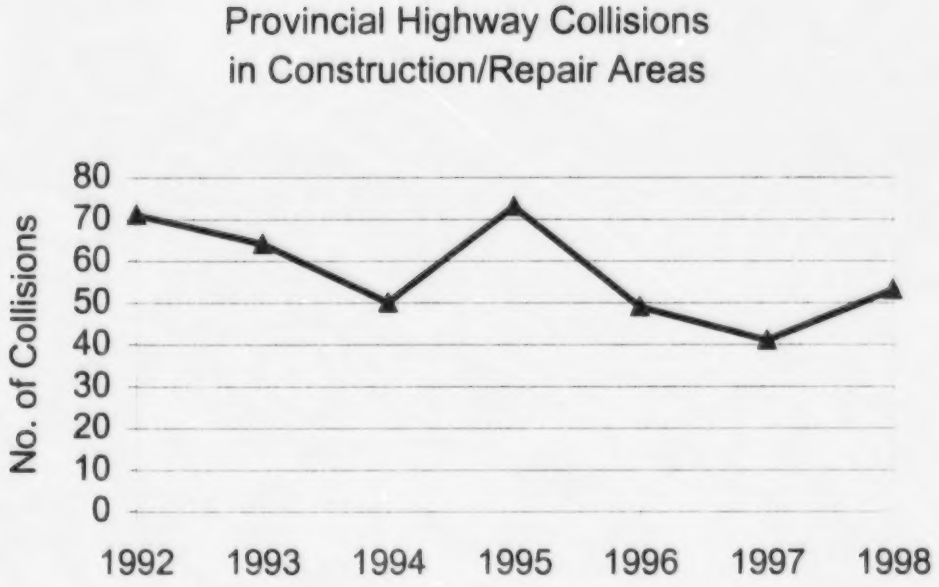
* Note: There is a maximum of three contributing factors recorded on the Traffic Accident Report for each vehicle involved in a collision. The data presented in this table represents the total number of at-fault 'environmental condition' factors reported. Due to the number of blank/not applicable entries reported in this data the totals do not correlate to the number of vehicles involved.

Vehicle Involvement
by Traffic Control/Advisory and Category
1998

Control/Advisory	Category			Total
	Rural	Suburban	Urban	
Traffic Signal/Control Device	56	126	634	816
Stop	163	46	249	458
Right Turn On Red	0	1	1	2
Left Turn On Red	0	2	0	2
Yield	38	10	56	104
Officer/Flagman/School Guard	15	2	10	27
Merge	4	1	13	18
4-Way Stop	0	0	3	3
Turn Controls	3	0	5	8
Flashing Signal Light	3	3	2	8
Overhead Signs	1	2	1	4
R.R. Gates	1	0	1	2
R.R. Auto Controls	2	1	1	4
R.R. Crossing	7	0	3	10
School Zone	0	0	2	2
Warning Sign	4	1	2	7
Pedestrian Crosswalk	0	1	62	63
Pedestrian Corridor	0	0	6	6
School Crossing	1	0	0	1
Flashing School Signals	1	2	0	3
Not Applicable	4346	585	1626	6557
Unknown/Other	2	0	4	6
Total	4647	783	2681	8111

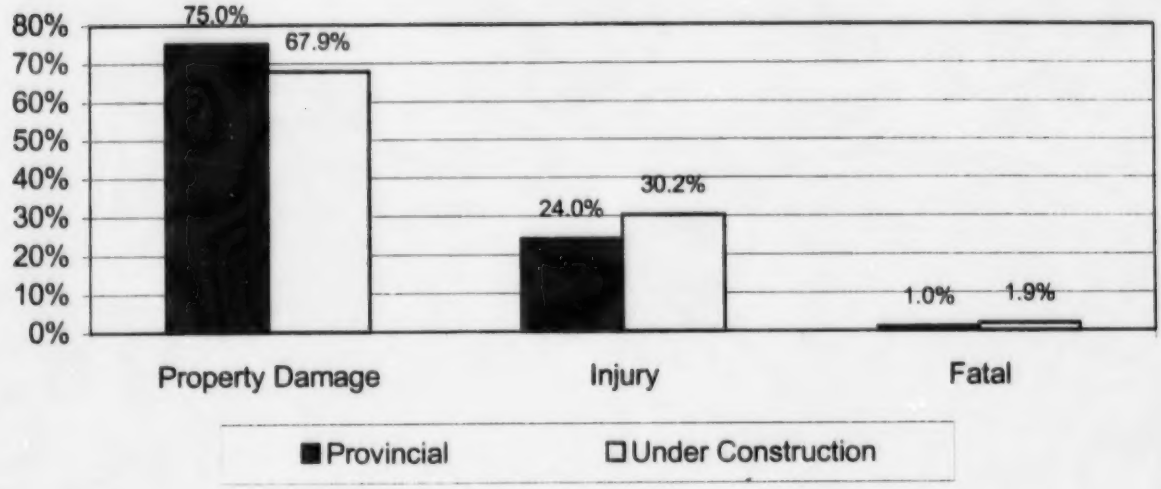
Section 2

Comparison of Construction Sites with Non-Construction Sites

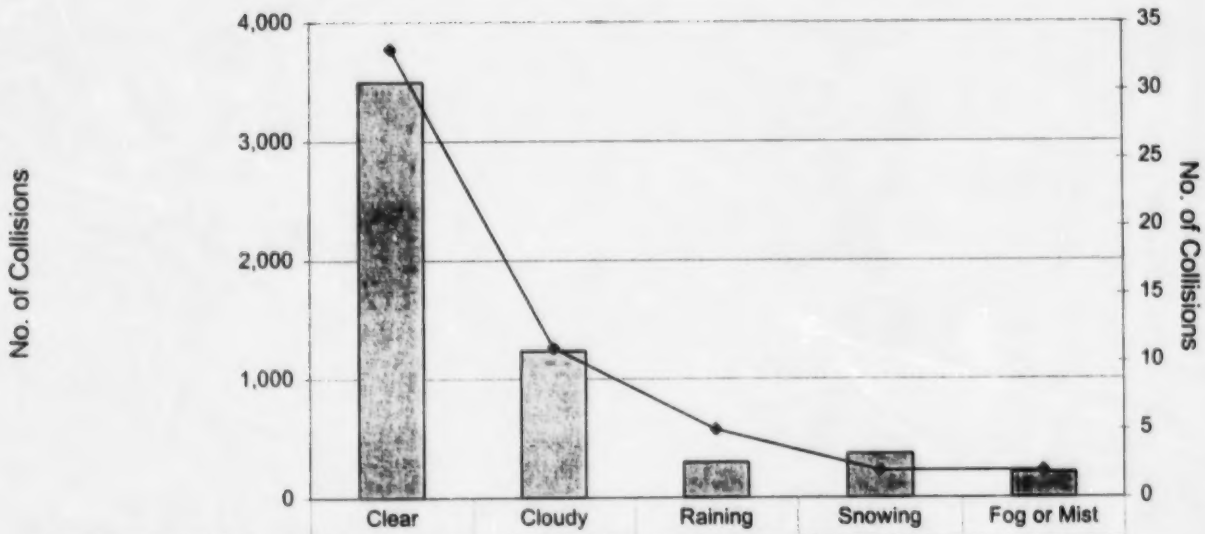


This section compares Provincial Highway construction-related collisions with the total Provincial Highway Collisions. Construction-related collisions are defined as those collisions which occurred on a roadway where the road condition was described as "under repair" or "under construction". In 1998, there were 53 such construction-related collisions which compares with 41 such collisions in 1997.

Comparison of Highway Collisions
by Severity
1998

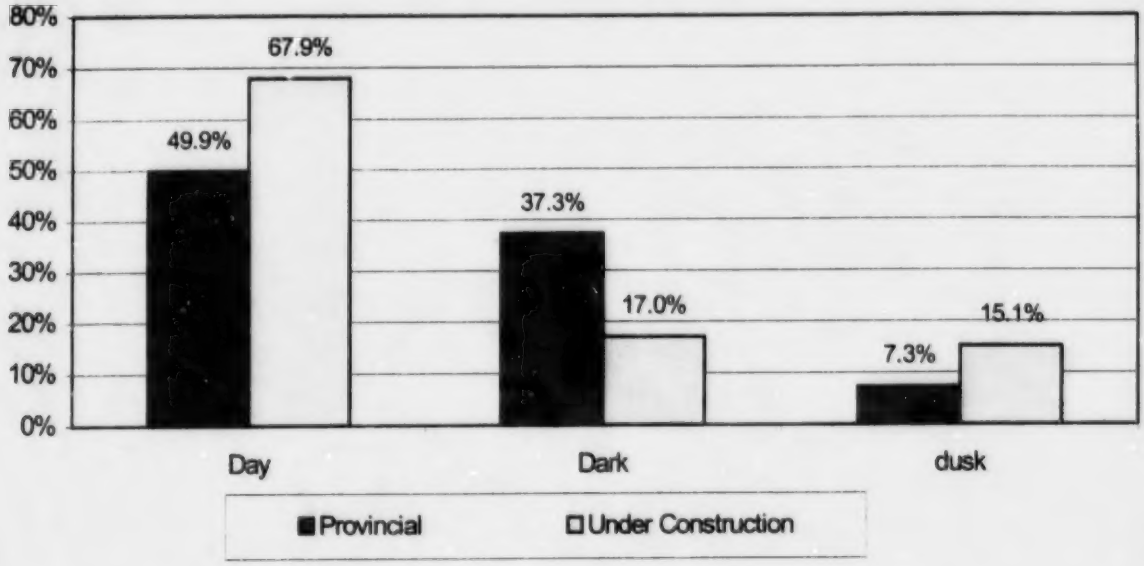


Comparison of Highway Collisions
by Weather Condition
1998



	Clear	Cloudy	Raining	Snowing	Fog or Mist
Provincial	3,494	1,234	299	368	212
Under Construction	33	11	5	2	2

Comparison of Highway Collisions
by Light Condition
1998



Comparison of Highway Collisions
by Traffic Control/Advisory
1998

Traffic Control	% in Province	% in Construction/Repair Areas
Not Applicable/Unknown	80.9	70.8
Traffic Signal/Control Device	10.1	9.7
Officer/Flagman	0.3	16.7
Stop	5.6	1.4
Warning Sign	0.1	1.4

Comparison of Highway Collisions by Site Type 1998

Site Type	% in Province	% in Construction/Repair Areas
Not Applicable/Other	11.8	11.3
Intersection	28.3	11.3
Between Intersections	53.6	66.0
Railway Level crossing	0.4	1.9
Bridge/Overpass	2.0	9.4

Comparison of Highway Collisions by First Collision or Event 1998

Collision With or Event	% in Province	% in Construction/Repair Areas
Ditch/Embankment/Earth Slope	8.4	13.9
Traffic barricade	0.1	2.8
Telephone/Power Pole	0.3	1.4
Guard Rail	0.6	1.4
Tree/Bush	0.3	1.4
Vehicle	55.3	51.4
Railroad Train	0.1	1.4
Animal	23.5	12.5
Construction Machinery	0.2	1.4
Ran Off Road	3.6	4.2
Overturned	0.8	4.2
Fire/Explosion	0.9	1.4
Skidding/Sliding	0.5	1.4
Other/Unknown	0.4	1.4

Comparison of Highway Collisions by Contributing Factors* 1998

Contributing Factor	Provincial		Construction/Repair Areas	
	No. of Collisions	Provincial %	No. of Collisions	Construction/ Repair Areas %
Driver Action				
Driving Properly	2909	17.9	19	8.8
Following Too Closely	244	1.5	3	1.4
Turning Improperly	158	1.0	1	0.5
Exceeding Speed Limit	45	0.3	1	0.5
Disobey Traffic Control Device/Officer	101	0.6	2	0.9
Backing Unsafely	49	0.3	1	0.5
Careless Driving	79	0.5	2	0.9
Lost Control/Drive Off Roadway	316	1.9	6	2.8
Leave Stop Sign Before Safe to Do So	95	0.6	1	0.5
Taking Avoiding Action	112	0.7	2	0.9
Driver Inexperience	116	0.7	1	0.5
Human Condition				
Apparently Normal	3946	24.2	32	14.8
Extreme Fatigue/Fell Asleep	101	0.6	1	0.5
Mental Confusion/Inability to Remember	12	0.1	1	0.5
Ability Impaired by Alcohol	111	0.7	1	0.5
Distraction/Inattention	325	2.0	3	1.4
Vehicle Condition				
No Apparent Defect	3200	19.7	24	11.1
Defective Tires	30	0.2	1	0.5
Fire	59	0.4	1	0.5
Load Shifted/Spilled	23	0.1	1	0.5
Environmental Condition				
Animal Action -Wild	1921	11.8	8	3.7
Slippery Road Surface	809	5.0	5	2.3
View Obstructed/Limited	111	0.7	3	1.4
Construction Zone	9	0.1	4	1.9
Defective Driving Surface	70	0.4	6	2.8
Weather	122	0.7	2	0.9

*Note: There is a maximum of three contributing factors recorded on the Traffic Accident Report for each vehicle involved in a collision. The data presented in this table is a compilation of total at-fault 'contributing factors' related to collisions at construction sites.

Section 3

Comparison of Intersection Collision Data

1989 - 1998

The 11 intersection classifications used in the "1998 Traffic Collision Statistics Report" have been broken down into rural, suburban and urban categories in this report. The Rate-Quality Control Technique has been used. In this method, a critical collision rate is calculated for each intersection based on the average for all locations in the specific group. The difference between the actual collision rate and the critical collision rate is referred to as the criticality.

i.e. criticality = actual collision rate - critical collision rate.

A positive criticality may be as a result of unfavourable site characteristics that may warrant further study.

In the rate-quality control equation, the desired level of confidence is chosen by deciding which value of the probability constant (k) will be used. As the chosen value of the confidence level increases in size (i.e. 90%, 95%, 99.5%) the value of the critical collision rate also increases. As the critical collision rate becomes higher, fewer locations will exceed the critical collision rate; confidence is then higher that the location is truly abnormal for its group.

In the analysis of the intersection data all years of available data have been included. The critical collision rates for each intersection have been omitted to allow for a clearer presentation of the data. For those intersections where N/A is shown, for a given year, the formulae have been adjusted to reflect the unavailable data.

Intersection Classification: Expressway - Expressway - Rural															
Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.345	k = 1.761	k = 2.977
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
1/100/101W	23790	16	17	20	16	20	16	14	5	12	6	1.64	0.58	0.54	0.41
7/101	17430	16	12	24	4	2	8	11	18	7	5	1.68	0.60	0.55	0.41
44/59	9040	4	9	5	4	4	7	2	2	3	7	1.42	0.27	0.20	0.00
1/12	9870	4	4	4	1	1	2	12	10	4	3	1.25	0.11	0.04	-0.15
8/101	22030	16	7	17	3	5	6	4	4	10	4	0.95	-0.12	-0.16	-0.29
6/101	7700	0	5	5	3	2	1	2	1	6	6	1.10	-0.07	-0.14	-0.36
59/100	13400	4	8	4	0	7	3	3	5	3	0	0.76	-0.35	-0.41	-0.57
1/100/101E	16380	5	10	3	4	1	4	2	2	8	1	0.67	-0.42	-0.47	-0.62
59/101	32160	10	8	14	4	6	3	3	6	1	2	0.49	-0.55	-0.59	-0.69
15/101	10630	2	0	2	0	0	2	1	3	2	8	0.52	-0.62	-0.68	-0.87
67/230	4120	0	0	1	4	2	0	1	1	0	1	0.66	-0.61	-0.71	-1.01
12/44E	2930	1	3	2	0	0	0	0	0	1	1	0.75	-0.60	-0.72	-1.08
12/44W	3940	0	1	0	2	1	2	0	1	0	0	0.49	-0.80	-0.90	-1.21
29/75	3440	0	1	1	0	0	0	1	2	0	0	0.40	-0.92	-1.03	-1.36
Average collision rate for analysed intersections =												0.91			

Intersections Presented	14
Total Intersections Analysed	14
No. of Intersections This Classification	14
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Expressway - Primary Arterial - Rural

Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.372	k = 1.812	k =3.169
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
1/83E	3160	n/a	5	4	2	2	1	1	1	2	2	1.93	0.67	0.55	0.15
12/15	3900	1	2	3	3	6	1	1	1	3	0	1.26	0.08	-0.03	-0.37
14/75	3980	1	2	1	1	2	1	3	2	1	4	1.17	-0.01	-0.12	-0.45
75/100	30300	n/a	3	12	7	4	2	9	6	6	1	0.48	-0.46	-0.51	-0.63
8/230	5820	4	1	1	2	2	3	0	2	1	2	0.80	-0.31	-0.40	-0.68
4/59	4900	1	2	1	2	0	2	1	0	1	1	0.62	-0.52	-0.62	-0.92
67/230	4120	0	0	1	4	4	0	1	1	0	1	0.66	-0.51	-0.61	-0.94
8/27	8850	2	0	3	2	2	0	1	2	1	0	0.37	-0.68	-0.75	-0.98
2/100	7930	1	1	0	0	2	1	1	1	1	2	0.31	-0.76	-0.83	-1.07
6/67	3430	1	2	1	0	2	1	0	0	1	0	0.56	-0.65	-0.77	-1.13

Average collision rate for analysed intersections = 0.82

Intersections Presented	10
Total Intersections Analysed	10
No. of Intersections This Classification	12
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Expressway - Secondary Arterial - Rural															
Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.345	k = 1.761	k = 2.977
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
75/201	3790	1	0	1	1	1	3	6	1	2	5	1.52	0.68	0.60	0.35
1/5	6060	0	2	5	0	8	0	2	1	0	2	0.90	0.14	0.07	-0.13
1/34	5640	1	3	4	2	1	1	2	1	1	2	0.87	0.10	0.03	-0.18
59/317	4150	1	1	2	3	1	3	1	1	1	0	0.92	0.10	0.02	-0.22
1/240	9350	5	8	7	1	1	1	0	1	0	0	0.70	-0.02	-0.07	-0.23
52/59	3860	3	0	0	0	3	0	1	3	2	0	0.85	0.02	-0.06	-0.31
1/13/430	9530	3	5	0	2	2	1	1	3	0	0	0.49	-0.23	-0.28	-0.44
1/11/610	4270	1	0	1	4	0	0	1	0	1	2	0.64	-0.18	-0.25	-0.49
9/9AS	11410	0	2	3	4	2	0	1	0	0	1	0.31	-0.39	-0.44	-0.58
9/230	4330	4	1	0	0	0	0	1	0	1	0	0.44	-0.37	-0.45	-0.68
44/214	2530	1	0	1	0	1	1	0	1	0	0	0.54	-0.37	-0.48	-0.78
1/44	3470	1	2	0	0	0	1	0	0	1	0	0.39	-0.46	-0.54	-0.81
1/250E	8800	0	0	0	0	0	1	0	1	0	1	0.09	-0.63	-0.69	-0.85
12/304/500	1930	1	0	0	0	0	0	0	0	0	0	0.14	-0.84	-0.95	-1.30

Average collision rate for analysed intersections = 0.53

Intersections Presented	14
Total Intersections Analysed	14
No. of Intersections This Classification	25
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Expressway - Secondary Arterial - Urban															
Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.638	k = 2.353	k = 5.841
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
15/206	7570	5	1	3	1	3	0	2	5	1	2	0.83	-0.04	-0.15	-0.67
23/75S	6990	2	1	1	1	0	1	1	0	1	2	0.39	-0.49	-0.60	-1.14
Average collision rate for analysed intersections =												0.61			

Intersections Presented	2
Total Intersections Analysed	2
No. of Intersections This Classification	2
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Expressway - Collector - Rural															
Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.345	k = 1.761	k = 2.977
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
12/501	1870	2	3	0	1	1	1	2	0	2	2	2.05	1.00	0.89	0.61
59/509	4500	3	2	0	1	1	3	6	2	4	3	1.52	0.64	0.58	0.40
1/256	3035	2	5	1	4	2	0	2	1	0	0	1.53	0.59	0.50	0.29
59/311	5690	3	7	0	1	3	2	3	2	4	2	1.30	0.46	0.39	0.24
8/220	8820	4	5	2	3	2	3	4	4	1	2	0.93	0.14	0.09	-0.04
75/205	5010	4	0	1	3	0	4	2	1	2	1	0.98	0.12	0.06	-0.11
101/221	9850	3	4	7	5	0	0	2	3	5	0	0.81	0.03	-0.02	-0.14
1/26	11190	2	2	4	7	3	3	3	3	3	2	0.78	0.01	-0.03	-0.14
59/300N	5665	4	2	2	0	0	2	3	1	2	2	0.87	0.03	-0.04	-0.19
15/207	9580	6	1	0	2	3	0	3	3	3	1	0.63	-0.15	-0.20	-0.32
59/405	4500	0	2	3	2	1	0	1	2	1	1	0.79	-0.09	-0.16	-0.33
59/213	15230	2	5	6	3	0	1	4	3	0	3	0.49	-0.26	-0.30	-0.39
44/215/302	6460	1	1	1	0	1	5	0	2	1	0	0.51	-0.32	-0.38	-0.53
100/330	9850	1	1	0	2	2	2	2	0	3	2	0.42	-0.36	-0.41	-0.53
1/302	4640	2	1	1	1	0	1	2	0	0	1	0.53	-0.34	-0.41	-0.59
59/210S	4810	1	1	0	1	3	2	0	0	0	1	0.51	-0.35	-0.42	-0.59
1/308	3660	1	0	0	0	2	0	2	1	1	0	0.52	-0.39	-0.46	-0.66
1/350	6200	1	0	0	0	0	0	3	1	2	1	0.35	-0.48	-0.54	-0.69
59/202	21380	2	2	0	0	1	2	1	0	0	1	0.12	-0.61	-0.64	-0.72
1/241	9780	2	0	1	0	0	2	3	0	0	0	0.22	-0.56	-0.61	-0.73
59/210N	5120	1	0	0	1	1	0	2	0	1	0	0.32	-0.54	-0.60	-0.77
59/300S	5665	1	0	1	1	1	1	0	0	0	1	0.29	-0.55	-0.62	-0.78
1/331	8335	1	1	0	0	1	1	1	0	0	1	0.20	-0.60	-0.65	-0.78
59/304S	3010	1	1	0	0	0	1	0	0	1	1	0.46	-0.49	-0.58	-0.79
1/301	3380	2	0	3	0	0	0	0	0	0	0	0.41	-0.52	-0.60	-0.81
59/305	3450	1	0	1	1	1	0	1	0	0	0	0.40	-0.52	-0.60	-0.81
75/246	4160	0	0	1	1	1	1	0	0	1	0	0.33	-0.56	-0.63	-0.82
75/305	5010	0	1	0	0	0	0	2	0	2	0	0.27	-0.59	-0.65	-0.82

Average collision rate for analysed intersections = 0.60

Intersections Presented	28
Total Intersections Analysed	32
No. of Intersections This Classification	96
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Expressway - Collector - Suburban															
Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.440	k = 1.943	k = 3.707
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
14/673WIN	6930	3	3	1	1	1	1	3	4	1	4	0.87	0.15	0.07	-0.27
1/259E/678	5720	3	1	1	3	1	1	2	2	2	1	0.81	0.07	-0.02	-0.40
101/204	28750	n/a	n/a	n/a	8	3	6	5	5	2	3	0.44	-0.18	-0.23	-0.43
1/334E	14230	8	1	3	0	2	1	1	2	3	3	0.46	-0.18	-0.24	-0.48
1/334W	12150	1	0	0	0	0	2	4	0	1	2	0.23	-0.43	-0.49	-0.75
101/204N	28750	n/a	n/a	n/a	3	2	0	0	0	0	3	0.11	-0.51	-0.56	-0.76
Average collision rate for analysed intersections =												0.49			

Intersections Presented	6
Total Intersections Analysed	6
No. of Intersections This Classification	6
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Primary Arterial - Primary Arterial - Rural

Intersection I.D.	Volume Entering	89	90	91	92	93	94	95	96	97	98	Collision Rate	criticality k = 1.333 conf = 90%	k = 1.740 conf = 95%	k = 2.898 conf = 99.5%
2/3	5550	2	3	5	7	6	1	4	5	5	2	1.97	0.95	0.87	0.65
3/14	7790	2	3	1	3	0	1	2	3	2	8	0.88	-0.10	-0.17	-0.35
8/67	4350	0	2	3	4	2	1	0	0	2	2	1.01	-0.06	-0.15	-0.40
5/10W	2430	0	1	3	1	1	2	1	1	0	1	1.24	0.05	-0.07	-0.40
5/10E	2490	0	0	1	3	1	2	1	1	0	1	1.10	-0.08	-0.20	-0.53
23/59	2240	1	0	3	0	0	0	1	0	3	1	1.10	-0.11	-0.23	-0.58
2/10S	2200	0	0	1	1	1	1	0	0	1	1	0.75	-0.47	-0.59	-0.94
2/10N	3000	2	1	1	0	0	0	1	1	0	0	0.55	-0.59	-0.70	-1.00
6/68N	1640	0	0	0	1	2	0	0	1	1	0	0.84	-0.46	-0.61	-1.02
16/83N	2480	0	1	0	1	1	0	0	1	0	1	0.55	-0.63	-0.75	-1.08
16/34/675E	3550	0	2	0	0	0	0	0	2	0	0	0.31	-0.80	-0.89	-1.17
2/83	1677	0	0	1	0	0	0	1	1	0	1	0.65	-0.64	-0.78	-1.18
3/83N	1210	0	0	0	1	0	1	0	0	0	0	0.45	-0.95	-1.12	-1.60
16/83S	1430	0	0	0	0	0	0	0	0	1	0	0.19	-1.15	-1.31	-1.74
10/39	860	0	0	0	1	0	0	0	0	0	0	0.32	-1.24	-1.43	-2.00
6/60	745	0	0	0	0	0	0	0	0	1	0	0.37	-1.26	-1.47	-2.08
10/60	695	0	0	0	0	0	0	1	0	0	0	0.39	-1.27	-1.49	-2.12

Average collision rate for analysed intersections = 0.75

Intersections Presented	17
Total Intersections Analysed	17
No. of Intersections This Classification	22
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Primary Arterial - Primary Arterial - Suburban

Intersection I.D.	Volume Entering	89	90	91	92	93	94	95	96	97	98	Collision Rate	criticality k = 1.333 conf = 90%	k = 1.740 conf = 95%	k = 2.898 conf = 99.5%
5/16W	7540	n/a	1	0	1	2	1	0	1	2	2	0.40	-0.24	-0.33	-0.78
5/16E	8000	0	0	2	0	0	0	0	0	2	3	0.24	-0.38	-0.47	-0.88
6/68S/417	2320	1	0	0	1	0	0	1	1	0	1	0.59	-0.24	-0.40	-1.17

Average collision rate for analysed intersections= 0.41

Intersections Presented	3
Total Intersections Analysed	3
No. of Intersections This Classification	4
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Primary Arterial - Secondary Arterial - Rural															
Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.313	k = 1.701	k = 2.763
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
10/16N/16A	4060	2	3	5	2	1	2	0	3	1	6	1.69	0.51	0.42	0.17
5/276	2600	1	0	2	3	1	3	1	3	0	0	1.48	0.20	0.09	-0.23
3/23	3850	1	1	3	1	0	1	3	2	2	1	1.07	-0.12	-0.21	-0.47
2/5	1560	1	1	1	0	0	1	0	1	2	1	1.40	-0.01	-0.16	-0.57
12/89/203	970	1	0	0	1	0	1	0	2	1	0	1.69	0.09	-0.10	-0.62
10/10AEFF	2370	1	3	0	1	1	0	0	0	1	2	1.04	-0.25	-0.38	-0.70
5/50/361	1610	0	1	2	1	0	1	1	1	0	0	1.19	-0.22	-0.36	-0.76
11/44N	1610	0	0	1	2	2	0	0	2	0	0	1.19	-0.22	-0.36	-0.76
59/201	1360	1	0	1	1	1	0	0	1	0	1	1.21	-0.26	-0.42	-0.85
16/21	2200	0	0	0	0	1	1	0	0	1	4	0.87	-0.44	-0.57	-0.91
2/34	1680	0	0	1	1	0	1	0	2	0	1	0.98	-0.42	-0.56	-0.95
10/357	1690	1	1	0	1	1	0	0	1	0	1	0.97	-0.42	-0.56	-0.95
3/10	1710	0	0	1	1	1	0	0	1	0	2	0.96	-0.43	-0.57	-0.96
12/59N	3650	0	0	1	1	1	0	2	2	0	1	0.60	-0.60	-0.69	-0.96
2/13	2730	2	0	1	1	1	0	1	1	0	0	0.70	-0.56	-0.67	-0.98
7/17	2610	1	1	0	1	0	1	1	1	0	0	0.63	-0.64	-0.76	-1.07
16/50	2680	1	0	1	0	0	2	0	2	0	0	0.61	-0.65	-0.76	-1.07
8/17	2830	0	2	1	0	0	1	0	1	1	0	0.58	-0.67	-0.78	-1.08
49/83	1110	0	1	0	1	0	1	0	0	1	0	0.99	-0.56	-0.74	-1.22
6/325S	2990	0	0	0	0	0	2	1	0	0	0	0.27	-0.96	-1.07	-1.36
68/278	880	0	0	0	0	0	0	0	0	0	3	0.93	-0.72	-0.92	-1.46
10/77	910	0	0	1	0	0	0	2	0	0	0	0.90	-0.73	-0.93	-1.46
5/5AN	3000	0	0	0	0	0	0	0	0	1	0	0.09	-1.15	-1.25	-1.55
16/45	2810	0	0	0	0	0	0	1	0	0	0	0.10	-1.16	-1.27	-1.57
2/21E	1280	0	0	0	0	0	0	0	0	0	1	0.21	-1.28	-1.44	-1.89
2/21W	1150	0	1	0	0	0	0	0	0	0	0	0.24	-1.30	-1.47	-1.94
10/20	930	0	0	0	0	0	0	0	0	0	1	0.29	-1.33	-1.52	-2.05
3/83S	780	0	1	0	0	0	0	0	0	0	0	0.35	-1.36	-1.57	-2.15

Average collision rate for analysed intersections = 0.83

Intersections Presented	28
Total Intersections Analysed	28
No. of Intersections This Classification	51
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Primary Arterial - Secondary Arterial - Urban														
Intersection I.D.	Volume Entering											Collision Rate	criticality	
													k = 1.886	k = 2.920	k = 9.925
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
10/10ASSR	3070	N/A	3	4	2	0	1	2	6	3	1	2.18	0.31	-0.04	-2.44
6/325N	3170	0	0	0	0	0	0	0	0	2	0	0.17	-1.65	-1.98	-4.21
Average collision rate for analysed intersections =												1.18			

Intersections Presented	2
Total Intersections Analysed	2
No. of Intersections This Classification	3
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Primary Arterial - Collector - Rural														
Intersection I.D.	Volume Entering											Collision Rate	criticality	
													k = 1.345	k = 1.761	k = 2.977
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
8/231	3250	4	5	5	7	1	0	3	5	2	4	3.03	2.32	2.25	2.07
59/205N	2540	3	1	1	1	1	0	1	0	0	0	0.86	0.10	0.02	-0.18
6/518	2620	0	1	1	1	0	3	1	0	0	0	0.73	-0.03	-0.10	-0.30
2/627GLE	1560	1	1	0	1	2	0	0	0	0	0	0.88	0.00	-0.10	-0.35
12/302	1220	0	1	0	1	0	1	1	0	0	1	1.12	0.18	0.07	-0.22
8/229	2740	0	1	0	3	2	0	0	3	0	0	0.90	0.15	0.08	-0.12
8/519	1960	1	2	0	0	1	1	0	0	0	0	0.70	-0.12	-0.21	-0.44
10/24/262	3640	0	3	0	0	0	2	2	0	0	1	0.60	-0.10	-0.16	-0.33
83/366	910	0	0	1	0	1	1	0	0	3	1	2.11	1.06	0.93	0.59
2/332	2020	0	2	1	0	0	0	1	0	0	0	0.54	-0.27	-0.36	-0.58
6/375	1070	1	1	0	0	0	1	0	0	0	0	0.77	-0.22	-0.34	-0.65
59/218	1360	2	0	0	0	0	1	0	0	0	0	0.60	-0.31	-0.41	-0.69
16/250E	1860	0	0	2	0	0	0	1	0	0	0	0.44	-0.39	-0.48	-0.71
16/651NEW	1970	0	0	3	0	0	0	0	0	0	0	0.42	-0.40	-0.49	-0.72
3/305	2270	0	0	0	3	0	0	0	1	1	1	0.72	-0.06	-0.14	-0.36
4/508	2310	0	0	0	1	1	0	1	0	1	0	0.47	-0.31	-0.39	-0.60
67/322	2540	0	0	0	0	0	1	2	1	0	0	0.43	-0.33	-0.41	-0.61
16/478	2585	1	1	0	0	0	0	0	1	0	1	0.42	-0.34	-0.41	-0.61
16/608BIN	2510	1	0	0	0	0	1	0	0	0	0	0.22	-0.55	-0.63	-0.83
391/633THO	2200	0	0	2	0	0	0	0	1	1	0	0.50	-0.29	-0.38	-0.59
83/255	972	0	1	0	0	1	0	0	0	0	0	0.56	-0.46	-0.58	-0.91
16/352	3706	1	0	0	0	0	0	0	0	0	0	0.07	-0.62	-0.69	-0.86
5/274E	2740	0	0	0	0	0	0	1	1	0	0	0.20	-0.55	-0.62	-0.82
10/23S	2370	0	0	0	0	0	1	0	0	0	0	0.12	-0.66	-0.74	-0.95
16/242W	3350	0	0	0	0	0	0	0	0	2	0	0.16	-0.55	-0.62	-0.79
59/629STM	2050	0	1	0	0	0	0	0	0	3	0	0.53	-0.27	-0.36	-0.58
10/279	1880	1	0	0	0	0	0	0	0	0	0	0.15	-0.68	-0.77	-1.01
5/480	1810	0	1	0	0	0	0	0	0	0	0	0.15	-0.68	-0.78	-1.02
10/266	1770	0	0	1	0	0	0	0	2	0	0	0.46	-0.38	-0.47	-0.71
16/242E	2840	0	0	0	0	0	0	0	0	0	0	0.00	-0.74	-0.82	-1.01

Average collision rate for analysed intersections = 0.43

Intersections Presented	30
Total Intersections Analysed	53
No. of Intersections This Classification	249
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Primary Arterial - Collector - Suburban														
Intersection I.D.	Volume Entering											Collision Rate	criticality	
													k = 1.886 conf = 90%	k = 2.920 conf = 95%	k = 9.925 conf = 99.5%
		89	90	91	92	93	94	95	96	97	98				
10/624FOR	4460	0	1	0	0	0	0	0	0	0	0	0.06	-0.90	-1.10	-2.42
6/237/627	1750	0	2	2	1	1	0	0	1	0	0	1.10	-0.13	-0.44	-2.55

Average collision rate for analysed intersections = 0.58

Intersections Presented	2
Total Intersections Analysed	2
No. of Intersections This Classification	8
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Secondary Arterial - Secondary Arterial - Urban

Intersection I.D.	Volume Entering	89	90	91	92	93	94	95	96	97	98	Collision Rate	criticality k = 3.078 conf = 90%	criticality k = 6.314 conf = 95%	criticality k = 63.657 conf = 99.5%
11/15	1350	n/a	n/a	0	1	0	0	1	2	1	0	1.27	-1.87	-3.71	-36.24

Average collision rate for analysed intersections = 1.27

Intersections Presented	1
Total Intersections Analysed	1
No. of Intersections This Classification	1
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Secondary Arterial - Secondary Arterial - Rural

Intersection I.D.	Volume Entering	89	90	91	92	93	94	95	96	97	98	Collision Rate	criticality k = 1.330 conf = 90%	criticality k = 1.734 conf = 95%	criticality k = 2.878 conf = 99.5%
11/304	5480	0	0	4	1	1	4	1	2	0	3	0.80	0.00	-0.06	-0.25
11/211	1810	0	2	2	0	0	0	1	0	1	0	0.91	-0.10	-0.22	-0.55
17/233	1880	0	1	0	1	0	1	2	0	0	0	0.73	-0.27	-0.38	-0.71
12/317	1300	1	0	0	1	0	1	1	1	1	1	1.48	0.37	0.23	-0.16
11/214	1860	1	1	1	0	1	0	0	1	1	0	0.88	-0.12	-0.23	-0.56
17/68	960	1	0	0	0	0	2	0	1	0	0	1.14	-0.08	-0.24	-0.69
7/68	2420	0	0	0	0	1	0	1	0	0	0	0.23	-0.71	-0.81	-1.10
3/18N	1677	1	0	0	0	0	0	1	0	0	0	0.33	-0.70	-0.82	-1.17
50/278	572	0	1	0	0	1	0	0	0	0	0	0.96	-0.51	-0.72	-1.31
9/17	3050	0	0	0	0	0	0	0	1	0	0	0.09	-0.80	-0.89	-1.14
3/31/240	1512	1	0	0	0	0	0	0	0	1	0	0.36	-0.70	-0.83	-1.19
25/250W	1180	0	0	1	0	0	0	0	0	0	0	0.23	-0.91	-1.05	-1.46
3/5	1560	0	0	0	0	0	0	0	1	0	1	0.35	-0.70	-0.83	-1.18
3/21N	880	0	0	0	0	1	0	0	0	0	0	0.31	-0.94	-1.11	-1.58
3/34N	1160	0	0	0	0	0	0	0	1	0	0	0.24	-0.91	-1.06	-1.47
3/21S	580	0	1	0	0	0	0	0	0	0	0	0.47	-0.99	-1.20	-1.78
200/201W	950	0	0	0	0	0	0	0	0	0	0	0.00	-1.22	-1.38	-1.84
227/240E	700	0	0	0	0	0	0	0	1	0	0	0.39	-0.97	-1.16	-1.69

Average collision rate for annalysed intersections = 0.55

Intersections Presented	18
Total Intersections Analysed	18
No. of Intersections This Classification	39
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Secondary Arterial - Collector - Rural															
Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.282	k = 1.645	k = 2.576
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
206/213	5560	0	2	4	6	2	2	5	5	1	2	1.43	0.71	0.66	0.51
3/256/657	730	0	1	0	0	3	0	0	0	0	0	1.50	0.27	0.12	-0.28
7/229	1619	0	0	1	1	1	2	1	0	0	0	1.02	0.07	-0.03	-0.30
45/264	1320	0	2	2	0	0	0	0	0	0	0	0.83	-0.17	-0.29	-0.59
340/457	2520	1	0	2	0	1	1	0	1	0	0	0.65	-0.19	-0.27	-0.49
16A/262	1720	3	0	0	0	0	0	1	1	0	0	0.80	-0.13	-0.23	-0.49
5/351	2000	0	1	0	1	1	0	1	0	2	1	0.96	0.07	-0.03	-0.27
68/326	2840	1	0	1	0	0	1	1	0	2	0	0.58	-0.24	-0.32	-0.52
11/313	1730	2	0	0	1	0	0	0	0	0	0	0.48	-0.45	-0.55	-0.81
9/238	10030	1	1	0	0	0	0	0	1	1	0	0.11	-0.54	-0.59	-0.69
16A/355	1898	1	1	0	0	0	0	1	0	0	0	0.43	-0.47	-0.57	-0.82
13/331	2145	0	0	1	0	0	1	1	0	0	0	0.38	-0.49	-0.58	-0.82
30/421	2323	0	1	1	0	0	1	0	0	0	0	0.35	-0.50	-0.59	-0.82
30/201S	3773	0	0	0	0	1	2	0	0	1	1	0.36	-0.41	-0.47	-0.65
240/331	2580	0	0	0	1	0	0	2	2	0	1	0.64	-0.20	-0.28	-0.50
17/419	470	1	0	0	1	0	0	0	0	0	1	1.75	0.28	0.09	-0.41
3/434	5320	0	0	0	0	0	0	1	0	0	0	0.05	-0.67	-0.73	-0.87
52/206	2761	2	0	0	0	0	0	0	1	2	0	0.50	-0.33	-0.41	-0.61
32/201N	2460	0	0	0	0	1	1	0	1	0	0	0.33	-0.51	-0.60	-0.81
11/307	1697	0	0	0	1	0	0	1	0	0	0	0.32	-0.61	-0.71	-0.97
52/210/302	1688	1	0	0	0	0	0	1	1	0	1	0.65	-0.28	-0.39	-0.65
256/257	784	0	0	0	1	1	0	0	0	0	0	0.70	-0.50	-0.65	-1.03
7/231S	1393	0	1	0	0	1	0	0	1	0	0	0.59	-0.40	-0.51	-0.80
21/24	1390	0	1	0	0	0	1	0	0	0	1	0.59	-0.40	-0.51	-0.80
23/34	1340	0	1	0	0	1	0	0	0	0	0	0.41	-0.59	-0.71	-1.00
5/23	880	0	0	1	1	0	0	0	0	1	1	1.25	0.10	-0.04	-0.41
3/253	1244	1	0	0	0	0	0	1	0	0	0	0.44	-0.58	-0.70	-1.01
23/200	1170	1	0	0	0	0	1	0	0	0	1	0.70	-0.34	-0.46	-0.78
30/201N	2595	0	0	0	0	1	0	0	0	1	2	0.42	-0.41	-0.50	-0.71
9/232S	2100	0	0	0	1	0	0	0	0	0	0	0.13	-0.75	-0.84	-1.08

Average collision rate for analysed intersections = 0.49

Intersections Presented	30
Total Intersections Analysed	52
No. of Intersections This Classification	209
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Secondary Arterial - Collector - Suburban

Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.533	k = 2.132	k = 4.604
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5
9/229	2950	0	90	0	0	0	0	0	1	0	0	0.09	-0.12	-0.19	-0.65
18/23E	1020	2	1	2	0	3	1	2	1	1	0	0.00	-0.69	-0.78	-1.14

Average collision rate for annalysed intersections = 0.76

Intersections Presented	2
Total Intersections Analysed	2
No. of Intersections This Classification	24
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Secondary Arterial - Collector - Urban

Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.533	k = 2.132	k = 4.604
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5
50/261	1612	0	2	0	3	1	2	1	1	0	0	1.91	0.42	0.18	-0.81
3/432	12000	2	1	2	0	3	1	2	1	1	3	0.31	-0.69	-0.78	-1.14
3/638MOR	7940	n/a	n/a	1	3	2	1	1	0	0	1	0.46	-0.65	-0.78	-1.30
340/344WAW	1840	0	1	0	0	0	0	1	0	0	0	0.37	-1.06	-1.29	-2.22

Average collision rate for annalysed intersections = 0.76

Intersections Presented	4
Total Intersections Analysed	4
No. of Intersections This Classification	39
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Collector - Collector - Rural															
Intersection I.D.	Volume Entering											Collision Rate	criticality		
													k = 1.282	k = 1.645	k = 2.576
		89	90	91	92	93	94	95	96	97	98		conf = 90%	conf = 95%	conf = 99.5%
206/311	1960	2	2	1	3	1	1	0	2	3	0	2.10	1.09	0.99	0.73
215/601BEA	4140	3	4	5	1	0	1	3	1	1	4	1.52	0.67	0.60	0.42
206/207	2350	2	4	0	1	0	3	1	0	2	1	1.63	0.67	0.58	0.34
205/246	410	2	0	0	1	0	0	0	0	0	1	2.67	0.97	0.75	0.17
207/213	5290	4	1	1	0	1	1	2	3	1	4	0.93	0.11	0.05	-0.11
200/305	1400	0	0	0	1	1	1	2	0	0	1	1.17	0.07	-0.05	-0.36
205/216S	2930	1	1	0	1	1	1	1	1	2	0	0.84	-0.07	-0.16	-0.37
200/311	1730	0	0	0	0	1	1	0	0	1	3	0.95	-0.09	-0.20	-0.48
205/216N	1810	0	1	3	0	0	1	0	0	0	0	0.76	-0.27	-0.38	-0.65
9/519	1960	2	1	0	0	1	0	1	0	0	0	0.70	-0.31	-0.41	-0.67
314/315	180	0	0	0	0	2	0	0	0	0	0	3.04	0.51	0.18	-0.69
205/330	910	2	0	0	1	0	0	0	0	0	0	0.90	-0.35	-0.50	-0.89
241/334E	2590	0	0	0	1	0	0	1	0	0	0	0.21	-0.73	-0.82	-1.05
200/210	1870	0	0	0	0	1	0	0	0	0	1	0.29	-0.72	-0.83	-1.10
313/520E	1770	0	0	0	1	0	0	1	0	0	0	0.31	-0.72	-0.83	-1.11
200/217S	410	0	0	1	0	0	0	1	0	0	0	1.34	-0.36	-0.59	-1.16
322/323W	430	0	1	1	0	0	0	0	0	0	0	1.27	-0.39	-0.61	-1.17
212/213	2130	0	0	0	0	1	0	0	0	0	0	0.13	-0.86	-0.95	-1.21
313/433	1720	0	0	0	0	0	0	0	0	0	0	0.00	-1.04	-1.15	-1.43
24/250	1100	0	0	0	0	0	0	0	0	0	0	0.00	-1.18	-1.32	-1.67
242/350	410	0	0	0	0	0	0	0	0	1	0	0.67	-1.03	-1.26	-1.83
200/217N	370	0	0	0	0	1	0	0	0	0	0	0.74	-1.04	-1.27	-1.88
250/355W	370	0	0	0	0	0	0	0	0	1	0	0.74	-1.04	-1.27	-1.88
307/309	340	0	0	0	0	1	0	0	0	0	0	0.81	-1.04	-1.29	-1.92
200/246	310	0	0	1	0	0	0	0	0	0	0	0.88	-1.04	-1.30	-1.96
220/321S	570	0	0	0	0	0	0	0	0	0	0	0.00	-1.49	-1.68	-2.16
41/42	480	0	0	0	0	0	0	0	0	0	0	0.00	-1.59	-1.80	-2.33
260/265W	460	0	0	0	0	0	0	0	0	0	0	0.00	-1.62	-1.83	-2.37
251/254	380	0	0	0	0	0	0	0	0	0	0	0.00	-1.76	-1.99	-2.59
250/355E	360	0	0	0	0	0	0	0	0	0	0	0.00	-1.80	-2.04	-2.65

Average collision rate for analysed intersections = 0.57

Intersections Presented	30
Total Intersections Analysed	43
No. of Intersections This Classification	298
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Collector - Collector - Suburban

Intersection I.D.	Volume Entering	89	90	91	92	93	94	95	96	97	98	Collision Rate	criticality k = 1.886 conf = 90%	k = 2.920 conf = 95%	k = 9.92 conf = 99
9/222/231	5380	2	1	0	0	1	1	3	3	1	1	0.66	-0.58	-0.79	-2.23
321/322	550	0	1	1	0	0	0	0	0	0	0	1.00	-1.29	-1.96	-6.46

Average collision rate for analysed intersections = 0.83

Intersections Presented	2
Total Intersections Analysed	2
No. of Intersections This Classification	21
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Collector - Collector - Urban

Intersection I.D.	Volume Entering	89	90	91	92	93	94	95	96	97	98	Collision Rate	criticality k = 1.440 conf = 90%	k = 1.943 conf = 95%	k = 3.70 conf = 99
9/616CGIM	5900	1	0	0	2	2	0	1	0	1	2	0.42	-0.42	-0.50	-0.79
241/334W	3250	0	0	0	2	1	0	2	0	2	1	0.67	-0.26	-0.37	-0.76
206/210S	1780	0	0	0	0	2	1	0	1	0	0	0.62	-0.46	-0.61	-1.14
206/210N	1430	0	0	0	0	1	1	0	1	0	0	0.57	-0.57	-0.74	-1.33
244/245N	940	0	0	2	0	0	0	0	0	0	2	1.17	-0.14	-0.35	-1.07
222/329	1190	0	0	0	0	0	0	0	0	0	0	0.00	-1.21	-1.40	-2.04

Average collision rate for analysed intersections = 0.57

Intersections Presented	6
Total Intersections Analysed	6
No. of Intersections This Classification	84
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Signalized Intersections - Suburban*

Intersection I.D.	Volume Entering	89	90	91	92	93	94	95	96	97	98	Collision Rate	criticality k = 1.318 conf = 90%	criticality k = 1.711 conf = 95%	criticality k = 2.797 conf = 99.5%
7/67	8700	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	4	0.19	0.17	0.17	0.17
221/636WPG	11860	9	9	12	7	12	7	5	4	4	4	1.69	0.80	0.75	0.61
1/16/305	9370	5	6	7	2	4	10	7	9	6	3	1.73	0.82	0.76	0.61
4/9/9AN	5265	n/a	n/a	n/a	n/a	n/a	5	2	3	1	2	0.68	-0.31	-0.38	-0.59
1/10W	8900	n/a	n/a	15	1	4	6	3	3	2	2	1.11	0.20	0.14	-0.02
9/RIVERWPG	12090	0	0	1	3	4	4	3	1	4	2	0.50	0.38	0.36	0.32
3/100	11360	14	5	6	0	3	8	6	10	9	2	1.52	0.63	0.58	0.44
1/207W	12300	n/a	n/a	n/a	n/a	9	8	6	3	6	0	0.71	-0.17	-0.22	-0.35
1A/4WPLP	19050	3	1	1	1	3	0	2	5	5	4	0.36	0.25	0.24	0.21
9/44	11800	9	12	10	7	0	4	3	5	5	4	1.37	0.49	0.44	0.30
1/ASSDWN	15350	2	1	0	0	0	2	0	0	0	0	0.09	-0.02	-0.04	-0.07
1/ODEON	15250	1	1	0	0	0	0	0	1	0	0	0.05	-0.06	-0.07	-0.11
1/1AE/10E	12700	8	5	6	4	6	4	4	6	5	3	1.10	0.22	0.18	0.04
100/STMARY	15050	6	12	7	3	1	1	6	5	9	6	1.02	0.16	0.11	-0.01
100/WAVER	14500	11	5	2	4	9	2	4	2	9	2	0.94	0.08	0.03	-0.09
101/425	9350	8	3	2	3	2	2	1	4	5	1	0.91	0.00	-0.06	-0.21
9/410	9650	n/a	n/a	1	3	0	2	5	4	5	5	0.71	-0.19	-0.25	-0.40
1A/3EPLP	17200	12	7	0	6	7	1	2	6	1	2	0.70	-0.15	-0.19	-0.31
14/32/428	8170	n/a	n/a	n/a	n/a	n/a	n/a	2	3	4	1	0.34	-0.59	-0.65	-0.81
100/STANNE	11600	4	5	2	1	1	2	1	3	2	1	0.52	-0.37	-0.42	-0.56
1A/457	16870	7	8	3	0	4	1	0	0	0	0	0.37	-0.48	-0.52	-0.64
101/204S	25900	n/a	n/a	n/a	2	2	3	2	1	1	2	0.14	-0.71	-0.75	-0.86
59/101N	32160	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9	1	0.09	-0.87	-0.94	-1.12
59/101S	32160	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	6	1	0.06	-0.89	-0.96	-1.15

Average collision rate for analysed intersections = 0.70

Intersections Presented	24
Total Intersections Analysed	24
No. of Intersections This Classification	32
Data Sorted at 99.5% Confidence Level	

*The data presented here represents intersections signalized by December 23, 1998.

Intersection Classification: Signalized Intersections - Urban*

Intersection I.D	Volume Entering	89	90	91	92	93	94	95	96	97	98	Collision Rate	criticality k = 1.319 conf = 90%	criticality k = 1.714 conf = 95%	criticality k = 2.807 conf = 99.5%
12/52	21110	19	20	17	12	19	19	18	12	6	17	2.06	1.17	1.14	1.03
10/PRINBRN	20620	14	14	10	6	14	7	6	13	10	15	1.45	0.56	0.52	0.41
1A/34BRN	22160	11	8	12	7	4	4	10	5	11	12	1.30	0.41	0.37	0.27
10/PARKBRN	10000	3	14	15	7	14	12	10	7	14	9	1.12	0.17	0.11	-0.05
5A/MEMDAU	17900	6	14	6	1	4	1	3	0	0	6	1.01	0.11	0.07	-0.05
1A/6BRN	14810	9	7	7	8	2	4	4	9	9	7	0.87	-0.05	-0.09	-0.22
9A/204	16500	2	4	7	6	7	1	5	6	6	3	0.83	-0.08	-0.12	-0.25
1A/24WPLP	10500	10	6	0	5	6	1	5	6	4	7	0.91	-0.04	-0.09	-0.25
391/SELTHO	17730	9	10	2	4	1	1	2	3	1	2	0.63	-0.27	-0.31	-0.43
1A/PRINBRN	9750	6	5	7	8	4	2	5	2	1	1	0.73	-0.23	-0.29	-0.45
3/13/245	16040	2	2	2	1	3	2	3	5	3	3	0.63	-0.28	-0.32	-0.45
1A/18WPLP	12200	3	7	1	4	7	4	2	5	3	1	0.63	-0.31	-0.36	-0.50
9A/MANCSEL	16460	5	1	4	5	3	0	3	4	3	0	0.57	-0.34	-0.39	-0.51
9A/STRASEL	18180	2	7	5	4	6	0	5	5	0	0	0.51	-0.39	-0.43	-0.55
1A/ROSSBRN	17080	3	5	4	2	0	7	6	4	3	0	0.51	-0.39	-0.44	-0.56
9A/ROSSSEL	20000	3	3	7	4	2	2	4	2	2	3	0.45	-0.44	-0.48	-0.59
1A/12WPLP	10912	1	3	7	2	7	3	0	4	2	4	0.53	-0.42	-0.47	-0.62
10/4STTPA	26200	1	2	0	4	2	3	1	2	3	3	0.32	-0.55	-0.59	-0.68
1A/ROYPLP	9390	4	1	4	4	4	3	2	1	6	2	0.50	-0.47	-0.52	-0.69
10A/BOAMFF	12620	6	3	3	2	1	0	0	2	0	0	0.43	-0.50	-0.55	-0.69
5A/1NWDAU	10140	2	2	2	2	0	3	2	5	0	2	0.41	-0.55	-0.61	-0.76
10/7TPA	16130	7	1	0	1	0	1	2	2	1	0	0.22	-0.69	-0.73	-0.86
1A/8BRN	8800	n/a	n/a	n/a	0	0	2	4	0	3	4	0.06	-1.32	-1.40	-1.60
23/75N	8800	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	0.06	-1.32	-1.40	-1.60

Average collision rate for analysed intersections = 0.75

Intersections Presented	24
Total Intersections Analysed	24
No. of Intersections This Classification	68
Data Sorted at 99.5% Confidence Level	

Intersection Classification: Signalized Intersections - Rural*

Intersection I.D.	Volume Entering	89	90	91	92	93	94	95	96	97	98	Collision Rate	criticality k = 1.319 conf = 90%	criticality k = 1.714 conf = 95%	criticality k = 2.807 conf = 99.5%
101/409	12137	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1	0.02	-0.02	-0.03	-0.04
1/248	9970	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	0.00	-0.05	-0.06	-0.07

Average collision rate for analysed intersections = 0.01

Intersections Presented	2
Total Intersections Analysed	2
No. of Intersections This Classification	8
Data Sorted at 99.5% Confidence Level	

* The data presented here represents intersections signalized by December 23, 1998.

Glossary

Ability Impaired by Alcohol	Driver had consumed a sufficient quantity of alcohol to impair their physical/mental condition.
Ability Impaired by Drugs	Driver had used a controlled substance and was legally impaired in the judgement of a law enforcement officer.
Accident	Refer to collision.
All-terrain Vehicle	An off-road vehicle which operates on three or more low pressure tires, has a seat designed to be straddled by the operator, and has handle bars for steering the vehicle.
Antique Vehicle	A car, truck or motorcycle that is more than thirty years old at the time of application for registration. A motor vehicle registered as an antique car, truck or motorcycle can be driven only when: a. taking it to be repaired or serviced; b. displaying it to the public in a parade or procession and driving it to or from such a parade or procession, c. driving it in an antique car, truck or motorcycle rally as authorized by the Registrar of MotorVehicles.
Collision	A reportable motor vehicle collision is one that results in a fatality, injury and/or total property damage exceeding $1,000.00.
Commercial Truck	A truck (or trailer) used to transport the registered owner's (or lessee's) own business goods: a. beyond a radius of 20 kilometres of the City of Winnipeg, where the registered owner's business address is in the City of Winnipeg, b. beyond a radius of 30 kilometres of a city, town or village other than the City of Winnipeg, where the registered owner's address is not in the City of Winnipeg.
Contributing Factors	Those events or circumstances that directly contribute to a traffic collision: Driver Action: Used to determine if the actions performed immediately prior to the collision may have been a factor in causing the collision. Human Condition: Used to determine if a driver's medical condition may have been a major factor incontributing to collision causation. Vehicle Condition: Used to determine if a vehicle has a mechanical defect that may have been a factor in collision causation. Environmental Condition: Used to determine if environmental factors are in some way responsible for the collision.

Dealer	A recognized person who in the course of his business buys, sells, exchanges, advertises, exhibits or offers for sale, or acts as a broker of, or commission agent in respect of new or used vehicles of a type required to be registered under *The Highway Traffic Act* and/or *The Taxicab Act*, and as such, is allowed to purchase for their own use dealer licence plates that can be affixed to a motor vehicle under their care.
Delivery Car	A passenger motor vehicle or a sedan delivery used, in either case, for delivery purposes, but does not include a public service vehicle or taxicab.
Driverless Vehicle/ Ran Out of Control	Includes improperly parked vehicles, vehicles set in motion by failure of parking brakes, vandalism, etc., without a driver in control. Includes cases where young children start and/or attempt to operate vehicles.
Farm Truck	A motor vehicle classified as a "truck" at time of registration and is owned by a person engaged in farming.
Fatal Collision	A motor vehicle collision which results in death to one or more individuals within 30 days of the collision.
Had Been Drinking/ Suspected Alcohol Use	Driver had consumed alcohol, but his/her physical condition was not legally impaired or tested for legal impairment.
Hydroplaning of tires	Refers to water on the roadway resulting in hydroplaning. The contact between the vehicle's tires and the roadway surface was eliminated.
Injury Collision	A motor vehicle collision which results in non-fatal injury to one or more individuals.
Livery	A vehicle licenced under The Highway Traffic Act for the Transportation of persons for compensation and is licenced to operate in the Province according to terms issued by the Motor Transport Board.
Moped	A motor vehicle which: a. has 2 tandem wheels or 3 wheels, each of which is more than 250 millimetres in diameter, b. has a seat or saddle having a minimum unladen height of 650 millimetres, when measured from the ground level to the top of the forward most part of the saddle, c. is capable of being driven at all times by pedals only if so equipped, by motor only or by both pedals and motor, and d. the motor has a piston displacement of not more than 50 cubic centimetres, or is an electric motor neither of which is capable of enabling the moped to attain a speed greater than 50 km/h.

Motorcycle	A motor vehicle, other than a tractor which: a. is designed to travel on not more than three wheels in contact with the ground, and b. has a seat or saddle for the use of the rider sitting astride thereof and is capable of attaining a speed of 50 km/h or more, c. and includes a bicycle with a motor attached by which it is driven, a motor scooter.
Not Stated	Reporting document does not contain the necessary information for a particular category.
Off-Road Vehicle (ORV)	Included in this category are the following: snowmobiles, off-road vehicle motorcycles, all-terrain vehicles, amphibious vehicles, dune/sport buggy and 4 wheel drive vehicles operated off-road.
Passenger Vehicle	A motor vehicle classified by the manufacturer as a passenger car or which is designed, constructed or adapted for the principle purpose of transporting passengers and includes a delivery car, but does not include a motorcycle, moped or motor vehicle which is designed, constructed or adapted for the purpose of carrying goods or commodities.
Property Damage Collision	A motor vehicle collision in which damage to vehicle and/or property was $1,000.00 or more, and which did not result in death or injury.
Public Service Vehicle (PSV)	A motor vehicle or trailer operated by or on behalf of any person, for transportation for gain or compensation of persons or property upon a highway, and includes a semi-trailer truck; but does not include the passenger-carrying motor vehicles of an electric, or steam railway or motor bus company operating on the streets of a city, or school buses, ambulances or hearses or motor vehicle operated for gain or compensation under *The Taxicab Act* or a municipal by-law in cities, towns,and villages.
Repairer	A person who maintains a garage for the purpose of rendering services therein upon motor vehicles and/or trailers, at a charge, price or consideration; or who owns and operates a fleet of five or more motor vehicles or trailers; or both, and maintains a facility for their repair, is permitted under *The Highway Traffic Act* to obtain "Repairer" licence plates to be used to transport motor vehicles for repair from place of origin to the repair facility and return, and the testing of the motor vehicle after the repair work has been completed.
Rural Collision	A collision occurring on the provincial highway system where the posted legal speed limit is 90 or 100 km/h.
Safety Equipment	Seatbelts, safety helmets and child restraints.
Snowmobile Collision	A snowmobile collision which results in death, injury and/or total property damage of $1,000.00 or more.

Snow Vehicle	A vehicle that has a gross vehicle weight in exceeding 454 kilograms and a. is not equipped with wheels, but in place thereof is equipped with tractor treads alone or with tractor treads and skis, or with skis and a propeller, or is a toboggan equipped with tractor treads or a propeller, b. is designed primarily for operating over snow or ice, and is used primarily for that purpose, and c. is designed to be self-propelled.
Suburban Collision	A collision occurring on the provincial highway system where the posted legal speed limit is 70 or 80 km/h.
Taxicab	A motor vehicle had, kept, used, intended for use, or operated, for the transportation of persons for compensation, and includes such vehicles when garaged or under repair; but does not include a. a public service vehicle, b. a trolley bus or passenger-carrying motor vehicle or a public transportation system operating on the streets of a city, c. a school bus, d. an ambulance, e. a hearse, or f. a motor vehicle, or vehicle of a class of motor vehicles, that The Taxicab Board established under *The Taxicab* Act excludes from the definition of a taxicab under that Act.
Tractor	A self-propelled vehicle that is designed primarily for traction purposes, and that is not itself constructed to carry a load other than the driver, and includes a farm tractor but does not include a truck tractor or a special mobile machine.
Trailer	A vehicle designed for carrying persons or chattels, and for being towed by a motor vehicle, and includes a farm trailer but does not include an implement of husbandry that is temporarily towed, propelled, or moved upon a highway.
Truck	A motor vehicle or semi-trailer truck, that is not a delivery car and that is constructed or adapted to carry goods, wares, and merchandise, freight or commodities, but not passengers or luggage.
U-Drive (Drive Yourself Vehicle)	A motor vehicle or trailer, kept for hire, that may be hired or rented without a drivers by the hour, day, week or longer but for which a single rental period is less than 30 days.
Urban Collision	A collision occurring on the provincial highway system where the posted legal speed limit is 50 or 60 km/h.
Vehicle Modification	A motor vehicle in which the axles, body, brakes, engine, steering control or suspension have been substantially altered or replaced with components of a different design or capacity from that approved by the manufacturer of the original vehicle.

Victims	All persons killed or injured in a motor vehicle related collision occurring on a public roadway.